Administrative Package Cover Page

This file contains the following documents:

1. Summary of application (in plain language)
   - English
   - Alternative Language (Spanish)
2. First Notice (NORI-Notice of Receipt of Application and Intent to Obtain a Permit)
   - English
   - Alternative Language (Spanish)
3. Application materials

Portada de Paquete Administrativo

Este archivo contiene los siguientes documentos:

1. Resumen en lenguaje sencillo (PLS, por sus siglas en inglés) de la actividad propuesta
   - Inglés
   - Idioma alternativo (español)
2. Primer aviso (NORI, el Aviso de Recepción de Solicitud e Intención de Obtener un Permiso)
   - Inglés
   - Idioma alternativo (español)
3. Solicitud original

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

PLAIN LANGUAGE SUMMARY FOR TPDES OR TLAP PERMIT APPLICATIONS

Plain Language Summary Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

Applicants should use this template to develop a plain language summary as required by Title 30, Texas Administrative Code (30 TAC), Chapter 39, Subchapter H. Applicants may modify the template as necessary to accurately describe their facility as long as the summary includes the following information: (1) the function of the proposed plant or facility; (2) the expected output of the proposed plant or facility; (3) the expected pollutants that may be emitted or discharged by the proposed plant or facility; and (4) how the applicant will control those pollutants, so that the proposed plant will not have an adverse impact on human health or the environment.

Fill in the highlighted areas below to describe your facility and application in plain language. Instructions and examples are provided below. Make any other edits necessary to improve readability or grammar and to comply with the rule requirements.

If you are subject to the alternative language notice requirements in 30 TAC Section 39.426, **you must provide a translated copy of the completed plain language summary in the appropriate alternative language as part of your application package**. For your convenience, a Spanish template has been provided below.

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS
Enter 'INDUSTRIAL' or 'DOMESTIC' here WASTEWATER/STORMWATER
The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

Brownsville Public Utilities Board (CN603752932) operates Silas Ray Power plant (RN100219450), a Electric Power Generating Facility. The facility is located at 94 W 13th Street, in Brownsville, Cameron County, Texas 78520. Brownsville Public Utilities Board has applied to TCEQ (Texas Commission on Environmental Quality to renew Texas Pollutant Discharge Elimination System (TPDES) to authorize the discharge of treated waste water at a volume not to exceed 390,000 gallons per day.

Discharges from the facility are expected to contain Free Available Chlorine,Aluminium, Copper Total, Total dissolved solids, chloride,Sulphate. Treated waste water from Power Plant will be treated by Cooling Tower 5/6 makeup is potable water treated with H2SO4, Cl2, and a scale inhibitor. The blowdown is dechlorinated with SO2 and discharged via Outfall 001. Outfall 002 receives wastewater from three separate areas prior to discharge. The first is from the Stormwater Runoff. There are no chemicals added to the stormwater. The second is treated wastewater from the Neutralization Basin (Outfall102). At the basin, the chemicals

used are NaOH and Citric Acid to control the pH. The third is Plant Low Volume Waste. This wastewater is made up of Oil/Water separator #9 and #10, Unit #6 Boiler blowdown, Cooling Tower #10 blowdown, and water treatment reject and membrane cleaning..

PLANTILLA EN ESPAÑOL PARA SOLICITUDES NUEVAS/RENOVACIONES/ENMIENDAS DE TPDES o TLAP

AGUAS RESIDUALES Introduzca 'INDUSTRIALES' o 'DOMÉSTICAS' aquí **/AGUAS PLUVIALES**

El siguiente resumen se proporciona para esta solicitud de permiso de calidad del agua pendiente que está siendo revisada por la Comisión de Calidad Ambiental de Texas según lo requerido por el Capítulo 39 del Código Administrativo de Texas 30. La información proporcionada en este resumen puede cambiar durante la revisión técnica de la solicitud y no es una representación ejecutiva fedérale de la solicitud de permiso.

La Junta de Servicios Públicos de Brownsville (CN603752932) opera la planta de energía Silas Ray (RN100219450), una instalación de generación de energía eléctrica. La instalación está ubicada en 94 W. 13th Street, en Brownsville, Condado de Cameron, Texas 78520. La Junta de Servicios Públicos de Brownsville ha solicitado a la TCEQ (Comisión de Calidad Ambiental de Texas la renovación del Sistema de Eliminación de Descargas de Contaminantes de Texas (TPDES) para autorizar la descarga de desechos tratados. aguas residuales en un volumen que no exceda los 390,000 galones por día.
Se espera que las descargas de la instalación contengan cloro libre disponible, aluminio, cobre total, sólidos disueltos totales, cloruro y sulfato. Agua residual tratada de la Planta de Energía será tratada por el maquillaje de la Torre de Enfriamiento 5/6 agua potable tratada con H2SO4, Cl2 y un inhibidor de incrustaciones. La purga se declora con SO2 y se descarga a través de la salida 001. La salida 002 recibe aguas residuales de tres áreas separadas antes de la descarga. El primero es de la corriente de aguas pluviales. No se agregan productos químicos al agua pluvial. El segundo son aguas residuales tratadas de la Cuenca de Neutralización (Salida 102). En la cuenca los químicos utilizados son NaOH y ácido cítrico para controlar el pH. El tercero es el de Residuos de Plantas de Bajo Volumen. Estas aguas residuales se componen del separador de aceite/agua #9 y #10, la unidad #6 de purga de caldera, la purga de la torre de enfriamiento #10 y el rechazo del tratamiento de agua y la limpieza de membranas.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

NOTICE OF RECEIPT OF APPLICATION AND INTENT TO OBTAIN WATER QUALITY PERMIT RENEWAL

PERMIT NO. WQ0003096000

APPLICATION. Public Utilities Board of the City of Brownsville, Texas, P.O. 3270, Brownsville, Texas, 78523, which owns a steam electric and gas-fired turbine power generating station, has applied to the Texas Commission on Environmental Quality (TCEQ) to renew Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0003096000 (EPA I.D. No. TX0105651) to authorize the discharge of treated wastewater at a volume not to exceed a daily average flow of 390,000 gallons per day via Outfall 001 and treated wastewater and stormwater at an intermittent and flow-variable rate via Outfall 002. The facility is located at 94 West 13th Street, in the city of Brownsville, in Cameron County, Texas 78520. The discharge route is from the plant site via Outfalls 001 and 002 to Morales Banco No. 133; thence to Rio Grande Below Falcon Reservoir. TCEQ received this application on July 3, 2024. The permit application will be available for viewing and copying at Brownsville Public Utililites Board-Environmental Services, 1425 Robinhood Street, Brownsville, Texas prior to the date this notice is published in the newspaper. The application, including any updates, and associated notices are available electronically at the following webpage: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications. This link to an electronic map of the site or facility's general location is provided as a public courtesy and not part of the application or notice. For the exact location, refer to the application.
https://gisweb.tceq.texas.gov/LocationMapper/?marker=-97.521589,25.913652&level=18

ALTERNATIVE LANGUAGE NOTICE. Alternative language notice in Spanish is available at: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications.
El aviso de idioma alternativo en español está disponible en https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications.

ADDITIONAL NOTICE. TCEQ's Executive Director has determined the application is administratively complete and will conduct a technical review of the application. After technical review of the application is complete, the Executive Director may prepare a draft permit and will issue a preliminary decision on the application. **Notice of the Application and Preliminary Decision will be published and mailed to those who are on the county-wide mailing list and to those who are on the mailing list for this application. That notice will contain the deadline for submitting public comments.**

PUBLIC COMMENT / PUBLIC MEETING. You may submit public comments or request a public meeting on this application. The purpose of a public meeting is to provide the

opportunity to submit comments or to ask questions about the application. TCEQ will hold a public meeting if the Executive Director determines that there is a significant degree of public interest in the application or if requested by a local legislator. A public meeting is not a contested case hearing.

OPPORTUNITY FOR A CONTESTED CASE HEARING. After the deadline for submitting public comments, the Executive Director will consider all timely comments and prepare a response to all relevant and material, or significant public comments. **Unless the application is directly referred for a contested case hearing, the response to comments, and the Executive Director's decision on the application, will be mailed to everyone who submitted public comments and to those persons who are on the mailing list for this application. If comments are received, the mailing will also provide instructions for requesting reconsideration of the Executive Director's decision and for requesting a contested case hearing.** A contested case hearing is a legal proceeding similar to a civil trial in state district court.

TO REQUEST A CONTESTED CASE HEARING, YOU MUST INCLUDE THE FOLLOWING ITEMS IN YOUR REQUEST: your name, address, phone number; applicant's name and proposed permit number; the location and distance of your property/activities relative to the proposed facility; a specific description of how you would be adversely affected by the facility in a way not common to the general public; a list of all disputed issues of fact that you submit during the comment period and, the statement "[I/we] request a contested case hearing." If the request for contested case hearing is filed on behalf of a group or association, the request must designate the group's representative for receiving future correspondence; identify by name and physical address an individual member of the group who would be adversely affected by the proposed facility or activity; provide the information discussed above regarding the affected member's location and distance from the facility or activity; explain how and why the member would be affected; and explain how the interests the group seeks to protect are relevant to the group's purpose.

Following the close of all applicable comment and request periods, the Executive Director will forward the application and any requests for reconsideration or for a contested case hearing to the TCEQ Commissioners for their consideration at a scheduled Commission meeting.

The Commission may only grant a request for a contested case hearing on issues the requestor submitted in their timely comments that were not subsequently withdrawn. **If a hearing is granted, the subject of a hearing will be limited to disputed issues of fact or mixed questions of fact and law relating to relevant and material water quality concerns submitted during the comment period.**

TCEQ may act on an application to renew a permit for discharge of wastewater without providing an opportunity for a contested case hearing if certain criteria are met.

MAILING LIST. If you submit public comments, a request for a contested case hearing or a reconsideration of the Executive Director's decision, you will be added to the mailing list for this specific application to receive future public notices mailed by the Office of the Chief Clerk. In addition, you may request to be placed on: (1) the permanent mailing list for a specific applicant name and permit number; and/or (2) the mailing list for a specific county. If you wish to be placed on the permanent and/or the county mailing list, clearly specify which list(s) and send your request to TCEQ Office of the Chief Clerk at the address below.

INFORMATION AVAILABLE ONLINE. For details about the status of the application, visit the Commissioners' Integrated Database at www.tceq.texas.gov/goto/cid. Search the database using the permit number for this application, which is provided at the top of this notice.

AGENCY CONTACTS AND INFORMATION. All public comments and requests must be submitted either electronically at **https://www14.tceq.texas.gov/epic/eComment/**, or in writing to the Texas Commission on Environmental Quality, Office of the Chief Clerk, MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Please be aware that any contact information you provide, including your name, phone number, email address and physical address will become part of the agency's public record. For more information about this permit application or the permitting process, please call the TCEQ Public Education Program, Toll Free, at 1-800-687-4040 or visit their website at www.tceq.texas.gov/goto/pep. Si desea información en Español, puede llamar al 1-800-687-4040.

Further information may also be obtained from Public Utilities Board of the City of Brownsville, Texas at the address stated above or by calling Ms. Seshumani Vorrey, R.E.M., Lead Environmental Compliance Specilaist, at 956-983-6252.

Issuance Date: July 30, 2024

Comisión de Calidad Ambiental del Estado de Texas

AVISO DE RECIBO DE LA SOLICITUD Y
EL INTENTO DE OBTENER PERMISO PARA LA CALIDAD DEL AGUA
RENOVACION

PERMISO NO. WQ0003096000

SOLICITUD. La Junta de Servicios Públicos de Brownsville, P.O. Box 3270, Brownsville, Condado de Cameron, Texas 78523, ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para renovar el Permiso No. WQ0003096000 (EPA I.D. No. TX0105651) del Sistema de Eliminación de Descargas de Contaminantes de Texas (TPDES) para autorizar la descarga de aguas residuales tratadas en un volumen que no sobrepasa un flujo promedio diario de 390,000 galones por día. La planta está ubicada 94 West 13th Street, Brownsville, Texas 78520 en el Condado de Cameron. La ruta de descarga es del sitio de la planta a La ruta de descarga es desde el sitio de la planta por las salidas 001 y 002 hasta el Dique Morales Banco No. 133; de allí al Río Grande Debajo de la reserva Falcón. La TCEQ recibió esta solicitud el 3 de Julio del 2024. La solicitud para el permiso estará disponible para leerla y copiarla en La Junta de Servicios Públicos de Brownsville- Environmental Services , 1425 Robinhood Drive, Brownsville Texas antes de la fecha de publicación de este aviso en el periódico. https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications. Este enlace a un mapa electrónico de la ubicación general del sitio o de la instalación es proporcionado como una cortesía y no es parte de la solicitud o del aviso. Para la ubicación exacta, consulte la solicitud. https://gisweb.tceq.texas.gov/LocationMapper/?marker=-97.521589,25.913652&level=18

AVISO ADICIONAL. El Director Ejecutivo de la TCEQ ha determinado que la solicitud es administrativamente completa y conducirá una revisión técnica de la solicitud. Después de completar la revisión técnica, el Director Ejecutivo puede preparar un borrador del permiso y emitirá una Decisión Preliminar sobre la solicitud. **El aviso de la solicitud y la decisión preliminar serán publicados y enviado a los que están en la lista de correo de las personas a lo largo del condado que desean recibir los avisos y los que están en la lista de correo que desean recibir avisos de esta solicitud. El aviso dará la fecha límite para someter comentarios públicos.**

COMENTARIO PUBLICO / REUNION PUBLICA. Usted puede presentar

comentarios públicos o pedir una reunión pública sobre esta solicitud. El propósito de una reunión pública es dar la oportunidad de presentar comentarios o hacer preguntas acerca de la solicitud. La TCEQ realiza una reunión pública si el Director Ejecutivo determina que hay un grado de interés público suficiente en la solicitud o si un legislador local lo pide. Una reunión pública no es una audiencia administrativa de lo contencioso.

OPORTUNIDAD DE UNA AUDIENCIA ADMINISTRATIVA DE LO CONTENCIOSO. Después del plazo para presentar comentarios públicos, el Director Ejecutivo considerará todos los comentarios apropiados y preparará una respuesta a todo los comentarios públicos esenciales, pertinentes, o significativos. **A menos que la solicitud haya sido referida directamente a una audiencia administrativa de lo contencioso, la respuesta a los comentarios y la decisión del Director Ejecutivo sobre la solicitud serán enviados por correo a todos los que presentaron un comentario público y a las personas que están en la lista para recibir avisos sobre esta solicitud. Si se reciben comentarios, el aviso también proveerá instrucciones para pedir una reconsideración de la decisión del Director Ejecutivo y para pedir una audiencia administrativa de lo contencioso.** Una audiencia administrativa de lo contencioso es un procedimiento legal similar a un procedimiento legal civil en un tribunal de distrito del estado.

PARA SOLICITAR UNA AUDIENCIA DE CASO IMPUGNADO, USTED DEBE INCLUIR EN SU SOLICITUD LOS SIGUIENTES DATOS: su nombre, dirección, y número de teléfono; el nombre del solicitante y número del permiso; la ubicación y distancia de su propiedad/actividad con respecto a la instalación; una descripción específica de la forma cómo usted sería afectado adversamente por el sitio de una manera no común al público en general; una lista de todas las cuestiones de hecho en disputa que usted presente durante el período de comentarios; y la declaración "[Yo/nosotros] solicito/solicitamos una audiencia de caso impugnado". Si presenta la petición para una audiencia de caso impugnado de parte de un grupo o asociación, debe identificar una persona que representa al grupo para recibir correspondencia en el futuro; identificar el nombre y la dirección de un miembro del grupo que sería afectado adversamente por la planta o la actividad propuesta; proveer la información indicada anteriormente con respecto a la ubicación del miembro afectado y su distancia de la planta o actividad propuesta; explicar cómo y porqué el miembro sería afectado; y explicar cómo los intereses que el grupo desea proteger son pertinentes al propósito del grupo.

Después del cierre de todos los períodos de comentarios y de petición que aplican, el Director Ejecutivo enviará la solicitud y cualquier petición para reconsideración o para una audiencia de caso impugnado a los Comisionados de la TCEQ para su consideración durante una reunión programada de la Comisión. La Comisión sólo puede conceder una solicitud de una audiencia de caso impugnado sobre los temas que el solicitante haya

presentado en sus comentarios oportunos que no fueron retirados posteriormente. Si se concede una audiencia, el tema de la audiencia estará limitado a cuestiones de hecho en disputa o cuestiones mixtas de hecho y de derecho relacionadas a intereses pertinentes y materiales de calidad del agua que se hayan presentado durante el período de comentarios. . Si ciertos criterios se cumplen, la TCEQ puede actuar sobre una solicitud para renovar un permiso sin proveer una oportunidad de una audiencia administrativa de lo contencioso.

LISTA DE CORREO. Si somete comentarios públicos, un pedido para una audiencia administrativa de lo contencioso o una reconsideración de la decisión del Director Ejecutivo, la Oficina del Secretario Principal enviará por correo los avisos públicos en relación con la solicitud. Ademas, puede pedir que la TCEQ ponga su nombre en una or mas de las listas correos siguientes (1) la lista de correo permanente para recibir los avisos de el solicitante indicado por nombre y número del permiso específico y/o (2) la lista de correo de todas las solicitudes en un condado especifico. Si desea que se agrega su nombre en una de las listas designe cual lista(s) y envia por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

CONTACTOS E INFORMACIÓN A LA AGENCIA. Todos los comentarios públicos y solicitudes deben ser presentadas electrónicamente vía http://www14.tceq.texas.gov/epic/eComment/ o por escrito dirigidos a la Comisión de Texas de Calidad Ambiental, Oficial de la Secretaría (Office of Chief Clerk), MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Tenga en cuenta que cualquier información personal que usted proporcione, incluyendo su nombre, número de teléfono, dirección de correo electrónico y dirección física pasarán a formar parte del registro público de la Agencia. Para obtener más información acerca de esta solicitud de permiso o el proceso de permisos, llame al programa de educación pública de la TCEQ, gratis, al 1-800-687-4040. Si desea información en Español, puede llamar al 1-800-687-4040.

También se puede obtener más información de la Junta de Servicios Públicos de la Ciudad de Brownsville, Texas en la dirección indicada anteriormente o llamando a la Sra. Seshumani Vorrey, R.E.M., Especialista Principal de Cumplimiento Ambiental, al 956-983-6252.

Fecha de emission 30 de julio de 2024

2024

BROWNSVILLE
PUBLIC UTILITIES BOARD

SILAS RAY POWER PLANT TPDES PERMIT RENEWAL

BROWNSVILLE
PUBLIC UTILITIES BOARD

July 1, 2024

Texas Commission on Environmental Quality
Water Quality Division
Applications Review and Processing Team, MC-148
12100 Park 35 Circle
Austin, TX 78753

Re: Silas Ray Power Plant TPDES Permit No. WQ0003096000
EPA ID No. TX0105651
RN100219450
CN603752932
Industrial Wastewater Permit Renewal Application

To Whom It May Concern:

Attached are an original and three copies of the TPDES permit renewal application package for the referenced permit. The Silas Ray Power Plant is a steam electric and gas turbine power generating station. The Silas Ray Power Plant is a 0.390 million gallons per day (MGD) permitted industrial discharger. A copy of the renewal fee checks in the amount of $1215.00 and the Supplemental Permit Information Form (SPIF) are also included with the application. The permit renewal application fee and the SPIF are being submitted under separate cover as requested by the TCEQ.
Note: Worksheet with analytical data is not submitted along with this application as the sampling could not be achieved from the outfalls as units are under outage. Once the units are online we will sample and submit the analytical data.

If you or a member of your staff have any questions, or need additional information please call me at (956) 983-6252 or e-mail at svorrey@brownsville-pub.com

Sincerely,

V. Seshumani

Seshumani Vorrey
Lead Environmental Compliance Specialist

Enclosure

cc: File

1425 Robinhood Drive P.O. Box 3270 Brownsville, TX 78523-3270
(956) 983-6100 Fax: (956) 983-6289

CORE DATA FORM

TCEQ

TCEQ Core Data Form

TCEQ Use Only

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided.)*

☐ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application.)*

☒ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 603752932		RN 100219450

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☐ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* — *If new Customer, enter previous Customer below:*

Public Utilities Board of the City of Brownsville

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
0022602101	32054740520	74-2137823	60-634-7037

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☒ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher

13. Independently Owned and Operated?
☒ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following:*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address: P.O. Box 3270

City	Brownsville	State	TX	ZIP	78523	ZIP + 4	3270

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
	svorrey@brownsville-pub.com

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(956) 983-6252		(956) 983-6260

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC.)

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

Silas Ray Power Plant

23. Street Address of the Regulated Entity: *(No PO Boxes)*	94 West 13th Street							
	City	Brownsville	**State**	TX	**ZIP**	78520	**ZIP + 4**	
24. County								

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	

26. Nearest City	**State**	**Nearest ZIP Code**

27. Latitude (N) In Decimal:	25.913652	**28. Longitude (W) In Decimal:**	-97.521589

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
25	54	49.1466	-97	31	17.7204

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
4911		221112	

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Generates electric power for Brownsville, Texas

34. Mailing Address:	**P.O. Box 3270**							
	City	**Brownsville**	**State**	**TX**	**ZIP**	**78523**	**ZIP + 4**	**3270**

35. E-Mail Address:	**svorrey@brownsville-pub.com**

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(956) 983-6253		**(956) 983-6260**

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☒ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:
	WQ0003096000			

SECTION IV: Preparer Information

40. Name:	Seshumani Vorrey	**41. Title:**	Lead Env Compliance Specialist

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(956) 983-6252		(956) 983-6260	svorrey@brownsville-pub.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Brownsville Public Utilities Board	**Job Title:**	Director of Environmental Services
Name*(In Print)* :	Alberto Gomez, Jr.	**Phone:**	(956) 983-6251
Signature:	Alberto Gomez Jr	**Date:**	7/1/24

Franchise Tax Account Status

As of : 03/26/2019 14:39:41

This Page is Not Sufficient for Filings with the Secretary of State

PUBLIC UTILITIES BOARD OF THE CITY OF BROWNSVILLE,

Texas Taxpayer Number	32054740520
Mailing Address	PO BOX 3270 BROWNSVILLE, TX 78523-3270
Right to Transact Business in Texas	ACTIVE
State of Formation	TX
Effective SOS Registration Date	07/12/1966
Texas SOS File Number	0022602101
Registered Agent Name	JOHN S. BRUCIAK
Registered Office Street Address	1425 ROBINHOOD DRIVE BROWNSVILLE, TX 78521

BROWNSVILLE
PUBLIC UTILITIES BOARD

July 1, 2024

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, Texas 78753

Re: Industrial Wastewater Permit Renewal Application Fee
Silas Ray Power Plant TPDES Permit No. WQ0003096000
EPA ID No. TX0105651
RN100219450
CN603752932

To Whom It May Concern:

Attached is the Renewal Permit Application fee in the amount of $1215.00 for the Silas Ray Power Plant Located at 94 West 13th Street, Brownsville (Cameron County), Texas. As per TCEQ request the fee has been sent separately.

If you or a member of your staff have any questions, please call me at (956) 983-6252 or e-mail at svorrey@brownsville-pub.com

Sincerely,

V. Seehumani

Seshumani Vorrey
Lead Environmental Compliance Specialist

Enclosure

cc: File

1425 Robinhood Drive P.O. Box 3270 Brownsville, TX 78523-3270
(956) 983-6100 Fax: (956) 983-6289

ADMINISTRATIVE REPORT WITH ATTACHMENTS

44TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the industrial wastewater permit application.

APPLICANT NAME: Brownsville Public utilities Board - Silas Ray Power Plant

PERMIT NUMBER (If new, leave blank): WQ00 03096000

Indicate if each of the following items is included in your application.

	Y	N		Y	N
Administrative Report 1.0	☒	☐	Worksheet 8.0	☐	☒
Administrative Report 1.1	☒	☐	Worksheet 9.0	☐	☒
SPIF	☒	☐	Worksheet 10.0	☐	☒
Core Data Form	☒	☐	Worksheet 11.0	☐	☒
Public Involvement Plan Form	☐	☒	Worksheet 11.1	☐	☒
Plain Language Summary	☒	☐	Worksheet 11.2	☐	☒
Technical Report 1.0	☒	☐	Worksheet 11.3	☐	☒
Worksheet 1.0	☒	☐	Original USGS Map	☒	☐
Worksheet 2.0	☐	☒	Affected Landowners Map	☒	☐
Worksheet 3.0	☐	☒	Landowner Disk or Labels	☒	☐
Worksheet 3.1	☐	☒	Flow Diagram	☒	☐
Worksheet 3.2	☐	☒	Site Drawing	☒	☐
Worksheet 3.3	☐	☒	Original Photographs	☒	☐
Worksheet 4.0	☐	☒	Design Calculations	☐	☒
Worksheet 4.1	☐	☒	Solids Management Plan	☐	☒
Worksheet 5.0	☐	☒	Water Balance	☒	☐
Worksheet 6.0	☐	☒			
Worksheet 7.0	☐	☒			

For TCEQ Use Only

Segment Number _____County _____
Expiration Date _____Region _____
Permit Number _____

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

This report is required for all applications for TPDES permits and TLAPs, except applications for oil and gas extraction operations subject to 40 CFR Part 435. Contact the Applications Review and Processing Team at 512-239-4671 with any questions about completing this report.

Applications for oil and gas extraction operations subject to 40 CFR Part 435 must use the Oil and Gas Exploration and Production Administrative Report (TCEQ Form-20893 and 20893-inst[1]).

Item 1. Application Information and Fees (Instructions, Page 26)

a. Complete each field with the requested information, if applicable.

Applicant Name: Brownsville Public Utilities Board

Permit No.: WQ0003096000

EPA ID No.: TX00105651

Expiration Date: January 16, 2025

b. Check the box next to the appropriate authorization type.

☒ Industrial Wastewater (wastewater and stormwater)

☐ Industrial Stormwater (stormwater only)

c. Check the box next to the appropriate facility status.

☒ Active ☐ Inactive

d. Check the box next to the appropriate permit type.

☒ TPDES Permit ☐ TLAP ☐ TPDES with TLAP component

e. Check the box next to the appropriate application type.

☐ New

☐ Renewal with changes ☒ Renewal without changes

☐ Major amendment with renewal ☐ Major amendment without renewal

☐ Minor amendment without renewal

☐ Minor modification without renewal

f. If applying for an amendment or modification, describe the request: Click to enter text.

For TCEQ Use Only

Segment Number _____County _____
Expiration Date _____Region _____
Permit Number _____

[1] https://www.tceq.texas.gov/publications/search_forms.html

g. Application Fee

EPA Classification	New	Major Amend. (with or without renewal)	Renewal (with or without changes)	Minor Amend. / Minor Mod. (without renewal)
Minor facility not subject to EPA categorical effluent guidelines (40 CFR Parts 400-471)	☐ $350	☐ $350	☐ $315	☐ $150
Minor facility subject to EPA categorical effluent guidelines (40 CFR Parts 400-471)	☐ $1,250	☐ $1,250	☒ $1,215	☐ $150
Major facility	N/A [2]	☐ $2,050	☐ $2,015	☐ $450

h. Payment Information

Mailed

Check or money order No.: 00179150

Check or money order amt.: $1,215.00

Named printed on check or money order: Brownsville Public Utilities Board

Epay

Voucher number: Click to enter text.

Copy of voucher attachment: Click to enter text.

Item 2. Applicant Information (Instructions, Pages 26)

a. Customer Number, if applicant is an existing customer: CN603752932

Note: Locate the customer number using the TCEQ's Central Registry Customer Search[3].

b. Legal name of the entity (applicant) applying for this permit: Brownsville Public Utilities Board

Note: The owner of the facility must apply for the permit. The legal name must be spelled exactly as filed with the TX SOS, Texas Comptroller of Public Accounts, County, or in the legal documents forming the entity.

c. Name and title of the person signing the application. (**Note:** The person must be an executive official that meets signatory requirements in 30 TAC § 305.44.)

Prefix: Mr Full Name (Last/First Name): Alberto Gomez, Jr

Title: Director of Environmental Services Credential: P.E.,R.E.M

d. Will the applicant have overall financial responsibility for the facility?

[2] All facilities are designated as minors until formally classified as a major by EPA.

[3] https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch

☒ Yes ☐ No

Note: The entity with overall financial responsibility for the facility must apply as a co-applicant, if not the facility owner.

Item 3. Co-applicant Information (Instructions, Page 27)

☒ Check this box if there is no co-applicant.; otherwise, complete the below questions.

a. Legal name of the entity (co-applicant) applying for this permit: NA

Note: The legal name must be spelled exactly as filed with the TX SOS, Texas Comptroller of Public Accounts, County, or in the legal documents forming the entity.

b. Customer Number (if applicant is an existing customer): CNClick to enter text.

Note: Locate the customer number using the TCEQ's Central Registry Customer Search.

c. Name and title of the person signing the application. (**Note:** The person must be an executive official that meets signatory requirements in 30 TAC § 305.44.)

Prefix: Click to enter text. Full Name (Last/First Name): Click to enter text.

Title: Click to enter text. Credential: Click to enter text.

d. Will the co-applicant have overall financial responsibility for the facility?

☐ Yes ☐ No

Note: The entity with overall financial responsibility for the facility must apply as a co-applicant, if not the facility owner.

Item 4. Core Data Form (Instructions, Pages 27)

a. Complete one Core Data Form (TCEQ Form 10400) for each customer (applicant and co-applicant(s)) and include as an attachment. If the customer type selected on the Core Data Form is Individual, complete Attachment 1 of the Administrative Report. Attachment: 1

Item 5. Application Contact Information (Instructions, Page 27)

Provide names of two individuals who can be contact for additional information about this application. Indicate if the individual can be contact about administrative or technical information, or both.

a. ☒ Administrative Contact . ☒ Technical Contact

Prefix: Ms Full Name (Last/First Name): Vorrey Seshumani

Title: Lead Environmental Compliance Specialist Credential: REM

Organization Name: Brownsville Public Utilities Board

Mailing Address: P.O Box 3270 City/State/Zip: Brownsville TEXAS, 78523

Phone No: (956) 983 6252 Email: svorrey@brownsville-pub.com

b. ☐ Administrative Contact ☐ Technical Contact

Prefix: Click to enter text. Full Name (Last/First Name): Click to enter text.

Title: Click to enter text. Credential: Click to enter text.

Organization Name: Click to enter text.

Mailing Address: Click to enter text. City/State/Zip: Click to enter text.

Phone No: Click to enter text. Email: Click to enter text.

Attachment: Click to enter text.

Item 6. Permit Contact Information (Instructions, Page 28)

Provide two names of individuals that can be contacted throughout the permit term.

a. Prefix: Mr Full Name (Last/First Name): **Gomez Alberto,Jr.**

Title: Director of Environmental Services Credential: P.E., R.E.M

Organization Name: Brownsville Public Utilities Board

Mailing Address: P.O. Box 3270 City/State/Zip: Brownsville, Texas, 78523

Phone No: (956) 983 6251 Email: agomez@brownsville-pub.com

b. Prefix: Mr Full Name (Last/First Name): Capistran Ramiro, Jr.

Title: Environmental manager Credential: REM

Organization Name: Brownsville Public Utilities Board

Mailing Address: PO Box 3270 City/State/Zip: 78523

Phone No: (956) 983 6511 Email: rcapistran@brownsville-pub.com

Attachment: Click to enter text.

Item 7. Billing Contact Information (Instructions, Page 28)

The permittee is responsible for paying the annual fee. The annual fee will be assessed for permits **in effect on September 1 of each year**. The TCEQ will send a bill to the address provided in this section. The permittee is responsible for terminating the permit when it is no longer needed (form TCEQ-20029).

Provide the complete mailing address where the annual fee invoice should be mailed and the name and phone number of the permittee's representative responsible for payment of the invoice.

Prefix: Mr Full Name (Last/First Name): Gomez.Alberto, Jr.

Title: Director of Environmental Services Credential: P.E., R.E.M

Organization Name: Brownsville Public Utilities Board

Mailing Address: P.O Box 3270 City/State/Zip: Brownsville, Texas,78523

Phone No: (956) 983 6251 Email: agomez@brownsville-pub.com

Item 8. DMR/MER Contact Information (Instructions, Page 28)

Provide the name and mailing address of the person delegated to receive and submit DMRs or MERs. **Note:** DMR data must be submitted through the NetDMR system. An electronic reporting account can be established once the facility has obtained the permit number.

Prefix: Mr Full Name (Last/First Name): Capistran Ramiro, Jr

Title: Environmental Manager Credential: R.E.M

Organization Name: Brownsville Public Utilities Board

Mailing Address: P.O Box 3270 City/State/Zip: Brownsville,Texas,78523

Phone No: (956) 983 4511 Email: rcapistran@brownsville-pub.com

Item 9. Notice Information (Instructions, Pages 28)

a. Individual Publishing the Notices

Prefix: Ms Full Name (Last/First Name): Vorrey Seshumani

Title: Lead Environmental Compliance Specialist Credential: R.E.M

Organization Name: Brownsville

Mailing Address: P.O Box 3270 City/State/Zip: Brownsville, Texas, 78523

Phone No: (956) 983 6252 Email: svorrey@brownsville-pub.com

b. Method for Receiving Notice of Receipt and Intent to Obtain a Water Quality Permit Package (only for NORI, NAPD will be sent via regular mail)

☒ E-mail: svorrey@brownsville-pub.com

☐ Fax: (956) 983 6260

☐ Regular Mail (USPS)

Mailing Address: Click to enter text.

City/State/Zip Code: Click to enter text.

c. Contact in the Notice

Prefix: Ms Full Name (Last/First Name): Seshumani Vorrey

Title: Lead Environmental Compliance Specialist Credential: R.E.M

Organization Name: Brownsville Publiv Utilities Board

Phone No: (956) 983 6252 Email: svorrey@brownsville-pub.com

d. Public Viewing Location Information

Note: If the facility or outfall is located in more than one county, provide a public viewing place for each county.

Public building name: Brownsville Administrative Bldg Location within the building: Environmental Services

Physical Address of Building: 1425 RobinHood Drive

City: BrownsvilleCounty: Cameron

e. Bilingual Notice Requirements

This information is required for new, major amendment, minor amendment or minor modification, and renewal applications.

This section of the application is only used to determine if alternative language notices will be needed. Complete instructions on publishing the alternative language notices will be in your public notice package.

Call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine if an alternative language notice(s) is required.

1. Is a bilingual education program required by the Texas Education Code at the elementary or middle school nearest to the facility or proposed facility?

   ☒ Yes ☐ No

   If no, publication of an alternative language notice is not required; skip to Item 8 (Regulated Entity and Permitted Site Information.)

2. Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?

   ☒ Yes ☐ No

3. Do the students at these schools attend a bilingual education program at another location?

   ☐ Yes ☒ No

4. Would the school be required to provide a bilingual education program, but the school has waived out of this requirement under 19 TAC §89.1205(g)?

   ☐ Yes ☒ No ☐ N/A

5. If the answer is yes to question 1, 2, 3, or 4, public notices in an alternative language are required. Which language is required by the bilingual program? Click to enter text.

f. Plain Language Summary Template - Complete the Plain Language Summary (TCEQ Form 20972) and include as an attachment. Attachment: Click to enter text.

g. Complete one Public Involvement Plan (PIP) Form (TCEQ Form 20960) for each application for a new permit or major amendment and include as an attachment. Attachment: Click to enter text.

Item 10. Regulated Entity and Permitted Site Information (Instructions Page 29)

a. TCEQ issued Regulated Entity Number (RN), if available: RN100219450

   Note: If your business site is part of a larger business site, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search the TCEQ's Central Registry to determine the RN or to see if the larger site may already be registered as a Regulated Entity. If the site is found, provide the assigned RN.

b. Name of project or site (the name known by the community where located): Silas Ray Power Plant

c. Is the location address of the facility in the existing permit the same?

   ☒ Yes ☐ No ☐ N/A (new permit)

   Note: If the facility is located in Bexar, Comal, Hays, Kinney, Medina, Travis, Uvalde, or Williamson County, additional information concerning protection of the Edwards Aquifer may be required.

d. Owner of treatment facility:

   Prefix: Click to enter text. Full Name (Last/First Name): Click to enter text.

   or Organization Name: **Brownsville Public Utilities Board**

   Mailing Address: P.O Box 3270 City/State/Zip: Brownsville,Texas, 78523

Phone No: (956) 983 6100 Email: www.brownsville-pub.com

e. Ownership of facility: ☐ Public ☐ Private ☐ Both ☐ Federal

f. Owner of land where treatment facility is or will be: Brownsville Public Utilities Board

Prefix: Click to enter text. Full Name (Last/First Name): Click to enter text.

or Organization Name: Brownsville Public Utilities Board

Mailing Address: P.O Box 3270 City/State/Zip: Brownsville, Texas, 78523

Phone No: (956) 983-6100 Email: www.Brownsville-pub.com

Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years (In some cases, a lease may not suffice - see instructions). Attachment: Click to enter text.

g. Owner of effluent TLAP disposal site (if applicable): NA

Prefix: Click to enter text. Full Name (Last/First Name): Click to enter text.

or Organization Name: Click to enter text.

Mailing Address: Click to enter text. City/State/Zip: Click to enter text.

Phone No: Click to enter text. Email: Click to enter text.

Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years. Attachment: Click to enter text.

h. Owner of sewage sludge disposal site (if applicable):

Prefix: NA Full Name (Last/First Name): Click to enter text.

or Organization Name: Click to enter text.

Mailing Address: Click to enter text. City/State/Zip: Click to enter text.

Phone No: Click to enter text. Email: Click to enter text.

Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years. Attachment: Click to enter text.

Item 11. TDPES Discharge/TLAP Disposal Information (Instructions, Page 31)

a. Is the facility located on or does the treated effluent cross Native American Land?

☐ Yes ☒ No

b. Attach an original full size USGS Topographic Map (or an 8.5"×11" reproduced portion for renewal or amendment applications) with all required information. Check the box next to each item below to confirm it has been included on the map.

☒ One-mile radius
☐ Three-miles downstream information
☒ Applicant's property boundaries
☒ Treatment facility boundaries
☒ Labeled point(s) of discharge
☐ Highlighted discharge route(s)
☐ Effluent disposal site boundaries
☐ All wastewater ponds
☐ Sewage sludge disposal site
☐ New and future construction

Attachment: A1

c. Is the location of the sewage sludge disposal site in the existing permit accurate?

☐ Yes ☐ No or New Permit

If no, or a new application, provide an accurate location description: NA

d. Are the point(s) of discharge in the existing permit correct?

☒ Yes ☐ No or New Permit

If no, or a new application, provide an accurate location description: Click to enter text.

e. Are the discharge route(s) in the existing permit correct?

☒ Yes ☐ No or New Permit

If no, or a new permit, provide an accurate description of the discharge route: Click to enter text.

f. City nearest the outfall(s): Brownsville

g. County in which the outfalls(s) is/are located: Cameron

h. Is or will the treated wastewater discharge to a city, county, or state highway right-of-way, or a flood control district drainage ditch?

☐ Yes ☒ No

If yes, indicate by a check mark if: ☐ Authorization granted / ☐ Authorization pending

For new and amendment applications, attach copies of letters that show proof of contact and provide the approval letter upon receipt. Attachment: Click to enter text.

For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge: Click to enter text.

i. For TLAPs, is the location of the effluent disposal site in the existing permit accurate?

☐ Yes No or New Permit ☐ NA

If no, or a new application, provide an accurate location description: Click to enter text.

j. City nearest the disposal site: Click to enter text.

k. County in which the disposal site is located: Click to enter text.

l. For TLAPs, describe how effluent is/will be routed from the treatment facility to the disposal site: Click to enter text.

m. For TLAPs, identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: Click to enter text.

Item 12. Miscellaneous Information (Instructions, Page 33)

a. Did any person formerly employed by the TCEQ represent your company and get paid for service regarding this application?

☐ Yes ☒ No

If yes, list each person: Click to enter text.

b. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

If yes, provide the following information:

Account no.: Click to enter text.

Total amount due: Click to enter text.

c. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

If yes, provide the following information:

Enforcement order no.: Click to enter text.

Amount due: Click to enter text.

Item 13. Signature Page (Instructions, Page 33)

Permit No: WQ0003096000

Applicant Name: Brownsville Public Utilities Board- Silas Ray Power Plant

Certification: I, Alberto Gomez,Jr., certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document and can provide documentation in proof of such authorization upon request.

Signatory name (typed or printed): Alberto Gomez, Jr.

Signatory title: Director of Environmental Services

Signature: Alberto G Jr (Use blue ink) Date: 7/2/24

Subscribed and Sworn to before me by the said Alberto Gomez Jr.

on this 2nd day of July, 2024.

My commission expires on the 5th day of April, 2028.

Nelda G. Lopez
Notary Public

NELDA G. LOPEZ
Notary Public, State of Texas
Comm. Expires 04-05-2028
Notary ID 2851140

[SEAL]

Cameron
County, Texas

Note: *If co-applicants are necessary, each entity must submit an original, separate signature page.*

INDUSTRIAL WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.1

The following information is required for new and amendment applications.

Item 1. Affected Landowner Information (Instructions, Page 35)

a. Attach a landowner map or drawing, with scale, as applicable. Check the box next to each item to confirm it has been provided.

- ☒ The applicant's property boundaries.
- ☒ The facility site boundaries within the applicant's property boundaries.
- ☐ The distance the buffer zone falls into adjacent properties and the property boundaries of the landowners located within the buffer zone.
- ☒ The property boundaries of all landowners surrounding the applicant's property. (Note: if the application is a major amendment for a lignite mine, the map must include the property boundaries of all landowners adjacent to the new facility (ponds).)
- ☒ The point(s) of discharge and highlighted discharge route(s) clearly shown for one mile downstream.
- ☒ The property boundaries of the landowners located on both sides of the discharge route for one full stream mile downstream of the point of discharge.
- ☐ The property boundaries of the landowners along the watercourse for a one-half mile radius from the point of discharge if the point of discharge is into a lake, bay, estuary, or affected by tides.
- ☐ The boundaries of the effluent disposal site (e.g., irrigation area or subsurface drainfield site) and all evaporation/holding ponds within the applicant's property.
- ☐ The property boundaries of all landowners surrounding the applicant's property boundaries where the effluent disposal site is located.
- ☐ The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners within one-quarter mile of the applicant's property boundaries where the sewage sludge land application site is located.
- ☐ The property boundaries of landowners within one-half mile in all directions from the applicant's property boundaries where the sewage sludge disposal site (e.g., sludge surface disposal site or sludge monofil) is located.

Attachment: A2

b. Check the box next to the format of the landowners list:

☐ Readable/Writeable CD ☒ Four sets of labels

Attachment: A3

d. Provide the source of the landowners' names and mailing addresses: Cameron County Appraisal District

e. As required by Texas Water Code § 5.115, is any permanent school fund land affected by this application?

☐ Yes ☒ No

If yes, provide the location and foreseeable impacts and effects this application has on the land(s): Click to enter text.

Item 2. Original Photographs (Instructions, Page 37)

Provide original ground level photographs. Check the box next to each of the following items to indicate it is included.

☐ At least one original photograph of the new or expanded treatment unit location.

☒ At least two photographs of the existing/proposed point of discharge and as much area downstream (photo 1) and upstream (photo 2) as can be captured. If the discharge is to an open water body (e.g., lake, bay), the point of discharge should be in the right or left edge of each photograph showing the open water and with as much area on each respective side of the discharge as can be captured.

☐ At least one photograph of the existing/proposed effluent disposal site.

☒ A plot plan or map showing the location and direction of each photograph.

Attachment: A4

INDUSTRIAL WASTEWATER PERMIT APPLICATION

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

This form applies to TPDES permit applications only. Complete and attach the Supplemental Permit information Form (SPIF) (TCEQ Form 20971).

Attachment: Click to enter text.

WATER QUALITY PERMIT

PAYMENT SUBMITTAL FORM

Use this form to submit the Application Fee, if mailing the payment. (Instructions, Page 36-37)

- Complete items 1 through 5 below.
- Staple the check or money order in the space provided at the bottom of this document.
- Do not mail this form with the application form.
- Do not mail this form to the same address as the application.
- Do not submit a copy of the application with this form as it could cause duplicate permit entries.

Mail this form and the check or money order to:

BY REGULAR U.S. MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, Texas 78711-3088

BY OVERNIGHT/EXPRESS MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, Texas 78753

Fee Code: WQP **Permit No:** WQ000Click to enter text.

1. Check or Money Order Number: Click to enter text.
2. Check or Money Order Amount: Click to enter text.
3. Date of Check or Money Order: Click to enter text.
4. Name on Check or Money Order: Click to enter text.
5. APPLICATION INFORMATION

   Name of Project or Site: Click to enter text.

   Physical Address of Project or Site: Click to enter text.

   If the check is for more than one application, attach a list which includes the name of each Project or Site (RE) and Physical Address, exactly as provided on the application.
   Attachment: Click to enter text.

Staple Check or Money Order in This Space

ATTACHMENT 1

INDIVIDUAL INFORMATION

Item 1. Individual information (Instructions, Page 38)

Complete this attachment if the facility applicant or co-applicant is an individual. Make additional copies of this attachment if both are individuals.

Prefix (Mr., Ms., or Miss): Click to enter text.

Full legal name (first, middle, and last): Click to enter text.

Driver's License or State Identification Number: Click to enter text.

Date of Birth: Click to enter text.

Mailing Address: Click to enter text.

City, State, and Zip Code: Click to enter text.

Phone No.: Click to enter text.

Fax No.: Click to enter text.

E-mail Address: Click to enter text.

CN: Click to enter text.

INDUSTRIAL WASTEWATER PERMIT APPLICATION CHECKLIST OF COMMON DEFICIENCIES

Below is a list of common deficiencies found during the administrative review of industrial wastewater permit applications. To ensure the timely processing of this application, please review the items below and indicate each item is complete and in accordance applicable rules at 30 TAC Chapters 21, 281, and 305 by checking the box next to the item. If an item is not required this application, indicate by checking N/A where appropriate. Please do not submit the application until all items below are addressed.

☐ Core Data Form (TCEQ Form No. 10400)
(Required for all applications types. Must be completed in its entirety and signed. Note: Form may be signed by applicant representative.)

☐ Correct and Current Industrial Wastewater Permit Application Forms
(TCEQ Form Nos. 10055 and 10411. Version dated 5/10/2019 or later.)

☐ Water Quality Permit Payment Submittal Form (Page 14)
(Original payment sent to TCEQ Revenue Section. See instructions for mailing address.)

☐ 7.5 Minute USGS Quadrangle Topographic Map Attached
(Full-size map if seeking "New" permit. 8 ½ x 11 acceptable for Renewals and Amendments.)

☐ N/A ☐ Current/Non-Expired, Executed Lease Agreement or Easement Attached

☐ N/A ☐ Landowners Map
(See instructions for landowner requirements.)

Things to Know:

- All the items shown on the map must be labeled.
- The applicant's complete property boundaries must be delineated which includes boundaries of contiguous property owned by the applicant.
- The applicant cannot be its own adjacent landowner. You must identify the landowners immediately adjacent to their property, regardless of how far they are from the actual facility.
- If the applicant's property is adjacent to a road, creek, or stream, the landowners on the opposite side must be identified. Although the properties are not adjacent to applicant's property boundary, they are considered potentially affected landowners. If the adjacent road is a divided highway as identified on the USGS topographic map, the applicant does not have to identify the landowners on the opposite side of the highway.

☐ N/A ☐ Landowners Cross Reference List
(See instructions for landowner requirements.)

☐ N/A ☐ Landowners Labels or CD-RW attached
(See instructions for landowner requirements.)

☐ Original signature per 30 TAC § 305.44 – Blue Ink Preferred
(If signature page is not signed by an elected official or principle executive officer, a copy of signature authority/delegation letter must be attached.)

☐ Plain Language Summary

BPUB POWER AND WATER PLANT

BPUB POWER AND WATER PLANT

BROWNSVILLE PUBLIC UTILITIES BOARD
GEOGRAPHIC INFORMATION SYSTEMS DEPARTMENT

Legend

- Property Owners
- BPUB Power Plant
- Outfall
- Banco Morales Vegetation Only

N W E S

TECHNICAL REPORT WITH ATTACHMENTS

TECHNICAL REPORT 1.0
INDUSTRIAL

This application form is for an industrial wastewater discharge authorization only. Your facility may need additional authorizations from the TCEQ Waste Permitting Division or the TCEQ Air Permitting Division.

The following information is required for **all TPDES** and **TLAP** renewal, new, and amendment applications.

1. FACILITY/SITE INFORMATION (Instructions, Pages 35-36)

a. Describe the type of activity and general nature of your business.

The Silas Ray Power Plant currently uses three Natural Gas fired combustion units to generate electricity for distribution to the grid. These combustion units consist of a steam generator referred to Unit 6, a combined cycle combustion turbine generator referred to Unit 9, and an aero derivative combustion turbine operating in simple cycle referred to Unit 10. The Power Plant has a generating capacity of 110 MW of electricity.

b. Describe the wastewater-generating processes.

Cooling Tower 5/6 makeup is potable water treated with H_2SO_4, Cl_2, and a scale inhibitor. The blowdown is dechlorinated with SO_2 and discharged via Outfall 001. Outfall 002 receives wastewater from three separate areas prior to discharge. The first is from the Stormwater Runoff. There are no chemicals added to the stormwater. The second is treated wastewater from the Neutralization Basin (Outfall102). At the basin, the chemicals used are NaOH and Citric Acid to control the pH. The third is Plant Low Volume Waste. This wastewater is made up of Oil/Water separator #9 and #10, Unit #6 Boiler blowdown, Cooling Tower #10 blowdown, and water treatment reject and membrane cleaning.

c. Provide a list of raw materials, major intermediates, and products handled at your facility.

Materials List

Raw Materials	Intermediate Products	Final Products
See Attachment T1		

d. Attach a facility map (drawn to scale) with the following information:

- Production areas, maintenance areas, materials-handling areas, and waste-disposal areas
- The location of each unit of the wastewater treatment plant including the location of wastewater collection sumps, impoundments, and outfalls (also include locations of sampling points if significantly different from outfall locations)

Attachment: T2

e. Is this a new permit application for an existing facility?

☐ Yes ☒ No

If **yes**, provide background discussion below.

f. Is the treatment facility/disposal site located above the 100-year frequency flood level?

☒ Yes ☐ No

List source(s) used to determine 100-year frequency flood plain:

Flood Insurance Rate Map, 12/1/78 Panel # 480103 0025, B
Flood Insurance Rate Map, 09/15/83 Panel # 480101 0325, B

If **no**, provide the elevation of the 100-year frequency flood plain and describe what protective measures are in use or planned to be used to prevent flooding of the treatment facility/disposal area.

g. For new or amendment permit applications, will any construction operations result in a discharge of fill material into a water in the state?

☐ Yes ☐ No

If **no**, proceed to Item 2.

h. If **yes** to the above question, has the applicant applied for a U.S. Army Corps of Engineers 404 Dredge and Fill permit?

☐ Yes ☐ No

If **yes**, provide the permit number:

If **no**, provide the approximate date you anticipate submitting your application to the Corps:

2. TREATMENT SYSTEM (Instructions, Page 36)

a. List any physical, chemical, or biological treatment process that you use for the treatment of wastewater at your facility. Include a description of each treatment process, starting with initial treatment and finishing with the outfall/point of disposal.

Outfall 102: pH Control – Neutralization Basin 16ft x 16ft x 10ft. Discharge from 102 is routed to the stormwater liftstation (E/W Pumps); then, pumped into a detention pond; then to Outfall 002 and into Banco Morales #133.

Outfall 002: Oil/Water separator from Boiler Blowdown #6/9. Oil/Water separator from Unit #10, Cooling Tower #10, Chiller #9, RO/EDI reject and plant and equipment drains.

b. Attach a flow schematic with a water balance showing each treatment unit and all sources of water and wastewater flow into the treatment plant and to each outfall/point of disposal.

Attachment: T3

3. IMPOUNDMENTS (Instructions, Pages 36-39)

Do you use or plan to use any wastewater lagoons, ponds, or impoundments?

☒ Yes ☐ No

If **yes**, complete **Item 3.a** for **existing** impoundments and **Items 3.a-3.h** for **new or proposed** impoundments. If **no**, proceed to Item 4.

Please note: Surface impoundments may also require additional authorizations from the TCEQ Waste Permit Division.

a. Provide the following information in the table provided:

Use Designation: Indicate the appropriate use designation for each pond: Treatment **(T)**, Disposal **(D)**, Containment **(C)**, or Evaporation **(E)**.

Associated Outfall Number: If a discharge occurs from the impoundments, designate the outfall associated with the impoundment.

Liner Type: If the impoundments are lined to comply with specifications outlined for 1) a compacted clay liner (C), 2) an in-situ clay liner (I), or 3) a synthetic/plastic/rubber liner (S), indicate the liner type with the appropriate letter designation **(see instructions for further detail on liner specifications)**. If not, provide a reference to the attachment that provides a description of the alternate liner and any additional technical information necessary for an evaluation.

Dimensions: Provide the dimensions, freeboard, surface area, and storage capacity of the impoundments. For impoundments with irregular shapes, submit surface area (instead of length and width), the average depth, and the maximum depth below natural ground level.

Impoundment Information

Parameter	Pond #1	Pond #2	Pond #	Pond #
Use Designation: (T) (D) (C) or (E)	T	C		
Associated Outfall Number				
Liner Type (C) (I) or (S)				
Alt. Liner Attachment Reference				
Length (ft)	16	210		
Width (ft)	16	125		
Depth from Water Surface (ft)	10	3.5		
Avg Depth from Nat. Ground Level (ft)				
Max Depth from Nat. Ground Level (ft)	8	0		
Freeboard (ft)				
Surface Area (acres)				
Storage Capacity (gallons)				
Compliance with *40 CFR Chapter 257, Subpart D* is required.	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☐ No	☐ Yes ☐ No

Impoundment Information

Parameter	Pond #	Pond #	Pond #	Pond #
Use Designation: (T) (D) (C) or (E)				
Associated Outfall Number				
Liner Type (C) (I) or (S)				
Alt. Liner Attachment Reference				
Length (ft)				
Width (ft)				
Depth from Water Surface (ft)				
Avg Depth from Nat. Ground Level (ft)				
Max Depth from Nat. Ground Level (ft)				
Freeboard (ft)				
Surface Area (acres)				
Storage Capacity (gallons)				
Compliance with *40 CFR Chapter 257, Subpart D* is required.	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

The following information (b - h) is required only for **new or proposed** impoundments.

b. Indicate if any of the following data was provided with the application:

- ☐ Compacted clay liner data
- ☐ Synthetic/plastic/rubber liner data
- ☐ In-situ clay liner data

Attachment:

c. Are there any leak detection systems or groundwater monitoring wells in place or planned?

☐ Yes ☐ No

If **yes**, attach information on the leak detection system for each pond and groundwater monitoring well data.

Attachment:

d. Is the bottom of the pond above the seasonal high water table in the shallowest waste-bearing zone?

☐ Yes ☐ No

If **no**, attach additional information describing the depth of the seasonal high water table in the shallowest waste-bearing zone in relation to the depth of the bottom of the new or proposed impoundment and how this may or may not impact groundwater.

Attachment:

e. Attach a USGS quadrangle map or a color copy of original quality and scale which accurately locates and identifies water supply wells and monitor wells within ½ mile radius of the impoundments

Attachment:

f. Attach copies of State Water Well Reports (driller's logs, completion data), and data on depths to groundwater for water supply wells including a description of how the depths to groundwater were obtained

Attachment:

g. For TLAP permit applications: Are new or proposed impoundment(s) and the land application disposal area are located in the same general area?

☐ Yes ☐ No

If **yes**, provide information for this item in Worksheet 3.0 (Item 5).

h. Attach information pertaining to the groundwater, soils, geology, etc. used to assess the potential for migration of wastes from the impoundments or the potential for contamination of groundwater or surface water.

Attachment:

4. OUTFALL/DISPOSAL METHOD INFORMATION (Instructions, Pages 39-40)

Complete the following tables to describe the location and wastewater discharge or disposal operations for each outfall for discharge operations and for each point of disposal for TLAP operations.

For TLAP permit applications: Indicate the disposal method and each individual irrigation area (I), evaporation pond (E), or subsurface drainage system (S) by providing the appropriate letter designation for the disposal method followed by a numerical designation for each disposal area in the space provided for "Outfall" designation (e.g. "E1" for evaporation pond 1, "I2" for irrigation area No. 2, etc.).

Outfall Latitude and Longitude

Outfall Number	Latitude-degrees	Latitude-minutes	Latitude-seconds	Longitude-degrees	Longitude-minutes	Longitude-seconds
001	25	54	50	97	31	23
102	24	54	50	97	31	21
002	25	54	48	97	31	24

Outfall Location Description

Outfall Number	Location Description
001	Sample 4" discharge line at chemical additive building.
102	Discharge from Neutralization Basin.
002	30" Stormwater Discharge pipe.

Description of Sampling Points (if different from Outfall location)

Outfall Number	Description of Sampling Point

Outfall Flow Information – Permitted and Proposed

Outfall Number	Permitted Daily Avg Flow (MGD)	Permitted Daily Max Flow (MGD)	Proposed Daily Avg Flow (MGD)	Proposed Daily Max Flow (MGD)
001	0.390	0.390		
102				
002				

Outfall Discharge – Method and Measurement

Outfall Number	Pumped Discharge? Y/N	Gravity Discharge? Y/N	Type of Flow Measurement Device Used
001	Y		Flow Meter
102	Y		Calculated
002	Y		

Outfall Discharge – Flow Characteristics

Outfall Number	Intermittent Discharge? Y/N	Seasonal Discharge? Y/N	Continuous Discharge? Y/N	Discharge Duration (hours/ day)	Discharge Duration (days/ month)	Discharge Duration (months/ year)
001	Y				2-4	
102	Y				2-4	
002	Y				4-5	

Wastestream Contributions

Outfall No.: 001

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Cooling Tower Blowdown	0.390	100

Outfall No.: 102

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Neutralization Basin	0.0048	100

Outfall No.: 002

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Plant Low Volume Waste (N/S Pumps)	0.1013	59.1
Stormwater Drains	0.0652	38.1
Outfall 102	0.0048	2.8

Additional Outfall wastestream contributions included as **Attachment:**

5. BLOWDOWN AND ONCE-THROUGH COOLING WATER DISCHARGES (Instructions, Pages 40-41)

a. Does your facility use any cooling towers or boilers that discharge blowdown or other wastestreams to the outfall(s)?

☒ Yes ☐ No

b. Does your facility discharge once-through cooling water to the outfall(s)?

☐ Yes ☒ No

c. If **yes** to either Item a **or** b, attach the appropriate SDS with the following information for each chemical additive.

- Manufacturers Product Identification Number
- Product use (e.g., biocide, fungicide, corrosion inhibitor, etc.)
- Chemical composition including CASRN for each ingredient
- Classify product as non-persistent, persistent, or bioaccumulative
- Product or active ingredient half-life
- Frequency of product use (e.g., 2 hours/day once every two weeks)
- Product toxicity data specific to fish and aquatic invertebrate organisms
- Concentration of whole product in wastestream (if above item is for whole product)
- Concentration of active ingredient in wastestream (if above item is for active ingredient)

Please provide a summary attachment of this information in addition to the submittal of the SDS for each specific wastestream and the associated chemical additives and specify which outfalls are affected.

Attachment: T4

d. Cooling Towers and Boilers

Cooling Towers and Boilers

Type of Unit	Number of Units	Dly Avg Blowdown (gallons/day)	Dly Max Blowdown (gallons/day)
Cooling Towers	2	7390	28682
Boilers	1	6652.04	7629.77

6. STORMWATER MANAGEMENT (Instructions, Page 41)

Are there any existing or proposed outfalls which discharge stormwater runoff commingled with other wastestreams?

☒ Yes ☐ No

If **no**, proceed to Item 7.

If **yes**, briefly describe the industrial processes and activities that occur outdoors or in some manner that may result in exposure of the materials to precipitation or runoff in areas where runoff is generated.

7. DOMESTIC SEWAGE, SEWAGE SLUDGE, AND SEPTAGE MANAGEMENT AND DISPOSAL (Instructions, Pages 41-42)

a. Please check the appropriate method(s) of domestic sewage and domestic sewage sludge treatment/disposal and complete Worksheet 5.0 or Item 7.b if directed to do so.

- ☒ Facility is connected to a wastewater treatment plant permitted to receive domestic sewage, or the domestic sewage is transported off-site to a permitted facility for treatment, disposal, or both. COMPLETE ITEM 7.b BELOW.
- ☐ Domestic sewage is disposed of by an on-site septic tank and drainfield system. COMPLETE ITEM 7.b BELOW.
- ☐ Both domestic and industrial treatment sludge ARE commingled prior to use or disposal.
- ☐ Industrial wastewater and domestic sewage are treated separately, and the respective sludge IS NOT commingled prior to sludge use or disposal. COMPLETE WORKSHEET 5.0 OF THIS APPLICATION.
- ☐ Facility is a POTW. COMPLETE WORKSHEET 5.0 OF THIS APPLICATION.
- ☐ Domestic sewage is not generated on-site.
- ☐ Other (e.g., portable toilets): Please provide a detailed description:

b. Provide the name and TCEQ, NPDES, or TPDES Permit No. of the waste-disposal facility which receives the domestic sewage/septage. If hauled by motorized vehicle, provide the name and TCEQ Registration No. of the hauler.

Domestic Sewage Plant/Hauler Name

Plant/Hauler Name	Permit/Registration No.
Brownsville Public Utilities Board – South Wastewater Treatment Plant	10397-003

8. IMPROVEMENTS OR COMPLIANCE/ENFORCEMENT REQUIREMENTS (Instructions, Page 42)

Is the permittee currently required to meet any implementation schedule for compliance or enforcement?

☐ Yes ☒ No

If **yes**, provide a brief summary of the requirements and a status update.

9. TOXICITY TESTING (Instructions, Pages 42-43)

Have any biological tests for acute or chronic toxicity been made on any of your discharges or on a receiving water in relation to your discharge within the last three years?

☐ Yes ☒ No

If **yes**, identify the tests and describe their purposes below. Please attach a copy of all tests performed that have not been previously sent to the TCEQ or the EPA.

Attachment:

10. OFF-SITE/THIRD PARTY WASTES (Instructions, Page 43)

Do you receive wastes from off-site sources for any or all of the following: treatment in your facility, disposal on-site via land application, or discharge via a permitted outfall?

☐ Yes ☒ No

If **no**, proceed to Item 11.

If **yes**, provide responses to Items a, b, and c below.

a. Attach the following information to the application:

- List of wastes received
- Characterization of wastes received
- Volumes of each waste received
- Information on compatibility with on-site wastes
- Identified sources of wastes received
- Name and addresses of generators
- Description of the relationship of waste source(s) with your facility's activities

Attachment:

b. Is wastewater from a TCEQ, NPDES, or TPDES permitted facility commingled with your wastewater after your final treatment and prior to discharge via your final outfall/point of disposal?

☐ Yes ☐ No

If **yes**, provide the name, address, and TCEQ, NPDES, or TPDES permit number of the contributing facility and a copy of any agreements or contracts relating to this activity.

Attachment:

c. Is your facility a Publicly Owned Treatment Works (POTW) that accepts process wastewater from any Significant Industrial User (SIU) and has or is required to have an approved pretreatment program under the NPDES/TPDES program?

☐ Yes ☐ No

If **yes**, complete **Worksheet 6.0** of this application.

11. RADIOACTIVE MATERIALS (Instructions, Page 44)

a. Are radioactive materials mined, used, stored, or processed at this facility?

☐ Yes ☒ No

If **yes**, use the following table to provide the results of one analysis of your effluent for all radioactive materials that may be present. Provide results in picocuries per liter (pCi/L).

Radioactive Materials Mined, Used, Stored, or Processed

Radioactive Material	Concentration (pCi/L)

b. Do you have any knowledge or reason to believe that radioactive materials may be present in the discharge, including naturally occurring radioactive materials in the source waters or on the facility property?

☐ Yes ☐ No

If **yes**, use the following table to provide the results of one analysis of your effluent for all radioactive materials that may be present. Provide results in picocuries per liter (pCi/L). Do not include information provided in response to Item 11.a.

Radioactive Materials Present in the Discharge

Radioactive Material	Concentration (pCi/L)

12. COOLING WATER INTAKE STRUCTURES (Instructions, Pages 44-46)

a. The facility uses or proposes to use water for cooling purposes?

☒ Yes ☐ No

If **yes**, complete this item (12. Cooling Water Intake Structures); otherwise, stop here.

b. Cooling Water Supplier

1. Complete the following table with information regarding the Cooling Water Intake Structure(s) owner(s), operator(s), and location

Cooling Water Intake Structure(s) Owner(s), Operator(s), and Location

CWIS ID	N/A			
Owner				
Operator				
Latitude				
Longitude				

2. Cooling water is obtained from a Public Water Supplier (PWS)

☒ Yes ☐ No

If **yes**, provide the Public Water Supplier Registration No. for the entity providing cooling water in the space provided, and stop here.

- PWS Registration Number: 0310001

3. Cooling water is obtained from an Independent Supplier

☐ Yes ☒ No

If **no**, proceed to section c; otherwise, if **yes** provide the following:

- Independent Supplier's TPDES permit number:

  If the Independent Supplier holds a TPDES Industrial Wastewater Permit, provide the permit number in the space provided. Otherwise enter N/A and continue.

- Independent Supplier's CWIS AIF (in MGD):

  Enter the Independent Supplier's CWIS actual intake flow (AIF) in million gallons per day in the space provided, and continue.

- The facility uses or proposes to use less than 25% of the Independent Supplier's CWIS AIF for cooling purposes?

  ☐ Yes ☐ No

  If **yes**, stop here. If **no**, proceed to section c.

c. 316(b) General Criteria

Compete all questions in this section unless otherwise directed.

1. The CWIS(s) have or will have a design intake flow of 2 MGD or greater

   ☐ Yes ☒ No

2. At least 25% of the total water withdrawn by the CWIS is used or will be used exclusively for cooling purposes on an annual average basis

   ☐ Yes ☒ No

3. The facility withdraws or proposes to withdraw water for cooling purposes from surface waters that meet the definition of Waters of the United States in *40 CFR § 122.2*

   ☐ Yes ☒ No

   If **no**, provide an explanation of how the waterbody does not meet the definition of Waters of the United States in *40 CFR § 122.2* in the space provided. If additional space is needed for the explanation, include the information as an attachment to the application and provide the attachment number in the space instead.

   Explanation:

   N/A - No CWIS - Potable drinking water is used for cooling purposes.

If **yes** to all three questions in section c above, proceed to section d. If **no** to any of the questions in section c above the facility does not meet the minimum criteria to be subject to the full requirements of 316(b). Complete Worksheet 11.0, items 1(a), 1(b)(i-iii) and (vi), 2(b)(i), and 3(a) to allow for a determination based upon best professional judgement (BPJ).

d. Phase I vs Phase II Facilities

1. Existing facility (Phase II)

   ☐ Yes ☐ No

   If **yes**, complete Worksheets 11.0 through 11.3, as applicable. Otherwise, continue.

2. New Facility – (Phase I)

   ☐ Yes ☐ No

   If **yes**, continue.

3. Compliance track selection (For Phase I only; must choose one of the following)

   ☐ Track I - AIF greater than 2 MGD, but less than 10 MGD

   If selected, include information required under *40 CFR §§ 125.86(b)(2)-(4)* as an attachment and complete Worksheet 11.0, items 2 and 3, and Worksheet 11.2.

   ☐ Track I - AIF greater than 10 MGD

   If selected, include information required under *40 CFR § 125.86(b)* as an attachment and complete Worksheet 11.0, items 2 and 3, and Worksheet 11.2.

   ☐ Track II

   If selected, include information required under *40 CFR § 125.86(c)* as an attachment and complete Worksheet 11.0, items 2 and 3, and Worksheet 11.2.

Attachment:

Note: Items 12, 13, and 14 are required only for **existing permitted** facilities.

13. MAJOR AMENDMENT REQUESTS (Instructions, Page 46)

Are you requesting a major amendment of an existing permit?

☐ Yes ☒ No

If **yes**, list each specific request and provide discussion on the scope of any requested permit changes. If necessary, provide supplemental information or additional data that will support the request.

14. MINOR MODIFICATION REQUESTS (Instructions, Page 47)

Are you requesting any minor modifications to the permit? Note: see the instructions for an exclusive list of changes considered as minor modifications.

☐ Yes ☒ No

If **yes**, list and discuss the requested changes.

15. MINOR AMENDMENT REQUESTS (Instructions, Page 47)

Are you requesting any minor amendments to the permit?

☐ Yes ☒ No

If **yes**, list and discuss the requested changes.

WORKSHEET 1.0
EPA CATEGORICAL EFFLUENT GUIDELINES

This worksheet is required for all applications for TPDES permits for discharges of wastewaters subject to EPA categorical effluent guidelines.

1. CATEGORICAL INDUSTRIES (Instructions, Pages 50-51)

Is your facility subject to any of the 40 CFR effluent guidelines outlined on page 52 of the instructions?

☒ Yes ☐ No

If **yes**, provide the appropriate information in the table below.

If **no**, this worksheet is not required.

40 CFR Effluent Guidelines

Industry	40 CFR Part
Steam Electric Power Generating	423

2. PRODUCTION/PROCESS DATA (Instructions, Page 51)

a. Production Data

Provide the appropriate data for effluent guidelines with production-based effluent limitations.

Production Data

Subcategory	Actual Quantity/Day	Design Quantity/Day	Units
N/A			

b. Organic Chemicals, Plastics, and Synthetic Fibers Manufacturing Data (*40 CFR Part 414*)

Provide each appropriate subpart and the percent of total production. Also provide the appropriate data for metal-bearing wastestreams as required in *40 CFR Part 414*, Appendices A and B.

Percentages of Total Production

Subcategory	Percent of Total Production	Appendix A and B - Metal	Appendix A and B – Process
N/A			

c. Refineries (*40 CFR Part 419*):

Provide the applicable subcategory and a brief justification.

N/A

3. PROCESS/NON-PROCESS WASTEWATER FLOWS (Instructions, Page 51)

Provide a breakdown of process wastewater flow(s) and non-process wastewater flow(s) as directed.

Cooling Tower Blowdown: Non-Process wastewater, 0.390 MGD
Boiler Blowdown: low volume waste source, 0.006 MGD
Reverse Osmosis Reject: low volume waste source, 0.0031 MGD

4. NEW SOURCE DETERMINATION (Instructions, Page 51)

Provide a list of wastewater-generating processes subject to effluent guidelines and the appropriate information.

Wastewater-generating Processes Subject to Effluent Guidelines

Process	EPA Guideline: Part	EPA Guideline: Subpart	Date Process/ Construction Commenced
Power Generation	423		1948

WORKSHEET 2.0
POLLUTANT ANALYSES REQUIREMENTS

Worksheet 2.0 is **required** for applications submitted for a TPDES permit.

Worksheet 2.0 is **not required** for applications for a permit to dispose of all wastewater by land disposal or for discharges solely of stormwater runoff.

1. LABORATORY ACCREDITATION (Instructions, Page 52)

Effective July 1, 2008, all laboratory tests performed must meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification* with the following general exemptions:

a. The laboratory is an in-house laboratory and is:

   1. periodically inspected by the TCEQ; or
   2. located in another state and is accredited or inspected by that state; or
   3. performing work for another company with a unit located in the same site; or
   4. performing pro bono work for a governmental agency or charitable organization.

b. The laboratory is accredited under federal law.

c. The data are needed for emergency-response activities, and a laboratory accredited under the Texas Laboratory Accreditation Program is not available.

d. The laboratory supplies data for which the TCEQ does not offer accreditation.

The applicant should review *30 TAC Chapter 25* for specific requirements. The following certification statement shall be signed and submitted with every application. See Instructions, Page 32, for a list of designated representatives who may sign the certification.

I,_____, certify that all laboratory tests submitted with this application meet the requirements of *30 TAC Chapter 25*, Environmental Testing Laboratory Accreditation and Certification.

2. GENERAL TESTING REQUIREMENTS (Instructions, Pages 52-54)

Please read the general testing requirements in the instructions for important information about sampling, test methods, MALs, and averaging sample results.

3. SPECIFIC TESTING REQUIREMENTS (Instructions, Pages 54-66)

Table 1 and Table 2 (Instructions, Page 54)

Completion of Tables 1 and 2 is required for all external outfalls for new, renewal, and amendment applications.

Table 1 for Outfall No.: 001

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)	Average (mg/L)
BOD (5-day)	<2.00	<2.00	<2.00	<2.00	<2.00
CBOD (5-day)	<2.00	<2.00	<2.00	<2.00	<2.00
Chemical oxygen demand	32.6	<22.0	<22.0	36.4	28.3
Total organic carbon	8.98	11.1	9.21	7.15	9.11
Dissolved oxygen	7.10	8.10	8.40	7.30	7.73
Ammonia nitrogen	0.289	0.196	0.456	0.454	0.349
Total suspended solids	3.80	2.50	5.10	2.90	3.58
Nitrate nitrogen	1.15	1.18	0.985	1.11	1.11
Total organic nitrogen	0.617	0.453	0.634	0.546	0.563
Total phosphorus	0.198	0.58	0.787	1.08	0.661
Oil and grease	<4.52	<4.58	<4.44	<4.54	<4.52
Total residual chlorine	0.05	<0.05	1.2	1.08	0.595
Total dissolved solids	1630	1950	1540	1360	1620
Sulfate	712	632	562	465	592.8
Chloride	421	382	381	353	384.3
Fluoride	1.04	0.82	0.71	0.595	0.791
Total alkalinity (mg/L as $CaCO_3$)	59.3	58.8	78.9	97.9	73.7
Temperature (°F)	81.7	78.1	69.4	75.4	76.2
pH (standard units)	7.60	8.10	7.50	7.80	7.75

Table 2 for Outfall No.: 001

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	Average (µg/L)	MAL (µg/L)
Aluminum, total	47.6	73.4	63.4	38.7	55.8	2.5
Antimony, total	2.42	2.75	2.33	1.22	2.18	5
Arsenic, total	12.4	13.5	12.7	6.91	11.4	0.5
Barium, total	176	201	167	136	170.0	3
Beryllium, total	<0.5	<0.500	<0.500	<0.500	<0.500	0.5
Cadmium, total	<0.2	<0.200	<0.200	<0.200	<0.200	1
Chromium, total	7.95	8.08	5.46	3.91	6.35	3
Chromium, hexavalent	<3.00	<3.00	<3.00	<3.00	<3.00	3
Chromium, trivalent	6.45	6.58	3.96	2.41	4.85	N/A
Copper, total	76.5	85.9	70.2	60.9	73.4	2
Cyanide, available	9.8	7.7	6.04	<5.00	7.14	2/10
Lead, total	<0.500	<0.500	<0.500	<0.500	<0.500	0.5
Mercury, total	<0.00426	<0.00489	<0.00426	<0.00426	<0.00442	0.005/0.0005
Nickel, total	44.2	47.3	40.2	37.4	42.3	2
Selenium, total	1.72	<1.00	4.47	2.12	2.33	5
Silver, total	<0.2	<0.200	<0.200	<0.200	<0.200	0.5
Thallium, total	<0.5	<0.500	<0.500	<0.500	<0.500	0.5
Zinc, total	71.4	81.5	74	61.4	72.1	5.0

TABLE 3 (Instructions, Page 54).

Completion of Table 3 is required for all external outfalls which discharge process wastewater.

Partial completion of Table 3 is required for all external outfalls with non-process wastewater discharges.

For discharges of stormwater runoff commingled with other wastestreams, complete Table 3 as instructed

Table 3 for Outfall No.: 001

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Samp. 1 (µg/L)*	Samp. 2 (µg/L)*	Samp. 3 (µg/L)*	Samp. 4 (µg/L)*	Avg. (µg/L)*	MAL (µg/L)*
Acrylonitrile	<1.00	<1.00	<1.00	<1.00	<1.00	50
Anthracene	<1.04	<1.02	<1.02	<1.04	<1.03	10
Benzene	<1.00	<1.00	<1.00	<1.00	<1.00	10
Benzidine	<5.21	<5.11	<1.54	<5.18	<4.26	50
Benzo(a)anthracene	<1.04	<1.02	<1.02	<1.04	<1.03	5
Benzo(a)pyrene	<1.04	<1.02	<1.02	<1.04	<1.03	5
Bis(2-chloroethyl)ether	<1.04	<1.02	<1.02	<1.04	<1.03	10
Bis(2-ethylhexyl)phthalate	<5.21	<5.11	<5.12	<5.18	<5.16	10
Bromodichloromethane [Dichlorobromomethane]	<1.00	<1.00	<1.00	<1.00	<1.00	10
Bromoform	<1.00	<1.00	<1.00	<1.00	<1.00	10
Carbon tetrachloride	<1.00	<1.00	<1.00	<1.00	<1.00	2
Chlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	10
Chlorodibromomethane [Dibromochloromethane]	<1.00	<1.00	<1.00	<1.00	<1.00	10
Chloroform	<1.00	<1.00	<1.00	<1.00	<1.00	10
Chrysene	<1.04	<1.02	<1.02	<1.04	<1.03	5
m-Cresol [3-Methylphenol]	<1.04	<1.02	<8.19	<1.04	<2.82	10
o-Cresol [2-Methylphenol]	<1.04	<1.02	<10.2	<1.04	<3.33	10
p-Cresol [4-Methylphenol]	<1.04	<1.02	<8.19	<1.04	<2.82	10
1,2-Dibromoethane	<1.00	<1.00	<1.00	<1.00	<1.00	10
m-Dichlorobenzene [1,3-Dichlorobenzene]	<1.04	<1.00	<1.00	<1.00	<1.01	10
o-Dichlorobenzene [1,2-Dichlorobenzene]	<1.00	<1.00	<1.00	<1.00	<1.00	10
p-Dichlorobenzene [1,4-Dichlorobenzene]	<1.04	<1.00	<1.00	<1.00	<1.01	10
3,3'-Dichlorobenzidine	<1.04	<1.02	<2.05	<1.04	<1.29	5
1,2-Dichloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	10
1,1-Dichloroethene [1,1-Dichloroethylene]	<1.00	<1.00	<1.00	<1.00	<1.00	10
Dichloromethane [Methylene chloride]	<1.00	<1.00	<1.00	<1.00	<1.00	20
1,2-Dichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	10
1,3-Dichloropropene [1,3-Dichloropropylene]	<1.00	<1.00	<1.00	<1.00	<1.00	10
2,4-Dimethylphenol	<2.08	<2.04	<1.02	<2.07	<1.80	10

Pollutant	Samp. 1 (µg/L)*	Samp. 2 (µg/L)*	Samp. 3 (µg/L)*	Samp. 4 (µg/L)*	Avg. (µg/L)*	MAL (µg/L)*
Di-n-Butyl phthalate	<1.04	<1.02	<1.02	<1.04	<1.03	10
Ethylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	10
Fluoride	1040	820	710	595	791.3	500
Hexachlorobenzene	<1.04	<1.02	<1.02	<1.04	<1.03	5
Hexachlorobutadiene	<1.04	<1.02	<1.05	<1.04	<1.04	10
Hexachlorocyclopentadiene	<1.04	<1.02	<1.02	<1.04	<1.03	10
Hexachloroethane	<1.04	<1.02	<2.05	<1.04	<1.29	20
Methyl ethyl ketone	<5.00	<5.00	<5.00	<5.00	<5.00	50
Nitrobenzene	<1.04	<1.02	<1.02	<1.04	<1.03	10
N-Nitrosodiethylamine	<1.04	<1.02	<1.02	<1.04	<1.03	20
N-Nitroso-di-n-butylamine	<1.04	<1.02	<1.02	<1.04	<1.03	20
Nonylphenol	<33.9	<34.6	<34.5	<33.7	<34.2	333
Pentachlorobenzene	<1.04	<1.02	<1.02	<1.04	<1.03	20
Pentachlorophenol	<1.04	<1.02	<5.12	<1.04	<2.06	5
Phenanthrene	<1.04	<1.02	<1.02	<1.04	<1.03	10
Polychlorinated biphenyls (PCBs) (**)	<0.209	<0.208	<0.203	<0.206	<0.207	0.2
Pyridine	<1.04	<1.02	<1.38	<1.04	<1.12	20
1,2,4,5-Tetrachlorobenzene	<1.04	<1.02	<1.05	<1.04	<1.04	20
1,1,2,2-Tetrachloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	10
Tetrachloroethene [Tetrachloroethylene]	<1.00	<1.00	<1.00	<1.00	<1.00	10
Toluene	<1.00	<1.00	<1.00	<1.00	<1.00	10
1,1,1-Trichloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	10
1,1,2-Trichloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	10
Trichloroethene [Trichloroethylene]	<1.00	<1.00	<1.00	<1.00	<1.00	10
2,4,5-Trichlorophenol	<1.04	<1.02	<5.12	<1.04	<2.06	50
TTHM (Total trihalomethanes)	<1.00	<1.00	<1.00	<1.00	<1.00	10
Vinyl chloride	<1.00	<1.00	<1.00	<1.00	<1.00	10

(*) Indicate units if different from µg/L.
(**) Total of detects for PCB-1242, PCB-1254, PCB-1221, PCB-1232, PCB-1248, PCB-1260, and PCB-1016. If all non-detects, enter the highest non-detect preceded by a "<".

TABLE 4 (Instructions, Page 55

Partial completion of Table 4 (only those pollutants which are required by the conditions specified below) **is required** for each external outfall.

Completion of Table 4 **is not required** for internal outfalls.

a. *Tributyltin*

Is your facility an industrial/commercial facility which directly disposes of wastewater from the types of operations listed below or a domestic facility which receives wastewater from the types of industrial/commercial operations listed below?

☐ Yes ☒ No

If **yes**, indicate all of the following criteria which apply and provide the appropriate testing results in the table below.

☐ Manufacturers and formulators of tributyltin or related compounds

☐ Painting of ships, boats and marine structures

☐ Ship and boat building and repairing

☐ Ship and boat cleaning, salvage, wrecking and scaling

☐ Operation and maintenance of marine cargo handling facilities and marinas

☐ Facilities engaged in wood preserving

☐ Any other industrial/commercial facility for which tributyltin is known to be present, or for which there is any reason to believe that tributyltin may be present in the effluent.

b. *Enterococci*

Does or will your facility discharge **directly** into **saltwater** receiving waters **and**:

Enterococci bacteria are expected to be present in the discharge based on facility processes?

☐ Yes ☒ No

Domestic wastewater is or will be discharged?

☐ Yes ☒ No

If **yes** to either question, provide the appropriate testing results in Table 4 below.

c. *E. coli*

Does or will your facility discharge **directly** into **freshwater** receiving waters **and**:

E. coli bacteria are expected to be present in the discharge based on facility processes?

☐ Yes ☒ No

Domestic wastewater is or will be discharged?

☐ Yes ☒ No

If **yes** to either question, provide the appropriate testing results in Table 4 below.

Table 4 for Outfall No.:

Samples are (check one): ☐ **Composites** ☐ **Grabs**

Pollutant	Sample 1	Sample 2	Sample 3	Sample 4	Average	MAL
Tributyltin (µg/L)						0.010
Enterococci (cfu or MPN/100 mL)						N/A
E. coli (cfu or MPN/100 mL)						N/A

TABLE 5 (Instructions, Page 56)

Completion of Table 5 **is required** for all external outfalls which discharge process wastewater or other wastewaters which may contain pesticides or herbicides from a facility which manufactures or formulates pesticides or herbicides. Completion of Table 5 **is not required** for internal outfalls.

Does your facility manufacture or formulate pesticides or herbicides?

☐ Yes ☒ No

If **yes**, provide the appropriate testing results in Table 5.

Table 5 for Outfall No.:

Samples are (check one): ☐ **Composites** ☐ **Grabs**

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	Average (µg/L)*	MAL (µg/L)*
Aldrin						0.01
Carbaryl						5
Chlordane						0.2
Chlorpyrifos						0.05
4,4'-DDD						0.1
4,4'-DDE						0.1
4,4'-DDT						0.02
2,4-D						0.7
Danitol [Fenpropathrin]						—
Demeton						0.20
Diazinon						0.5/0.1
Dicofol [Kelthane]						1
Dieldrin						0.02
Diuron						0.090
Endosulfan I (*alpha*)						0.01
Endosulfan II (*beta*)						0.02
Endosulfan sulfate						0.1
Endrin						0.02
Guthion [Azinphos methyl]						0.1
Heptachlor						0.01
Heptachlor epoxide						0.01
Hexachlorocyclohexane (*alpha*)						0.05
Hexachlorocyclohexane (*beta*)						0.05
Hexachlorocyclohexane (*gamma*) [Lindane]						0.05
Hexachlorophene						10
Malathion						0.1
Methoxychlor						2.0
Mirex						0.02
Parathion (ethyl)						0.1
Toxaphene						0.3
2,4,5-TP [Silvex]						0.3

* Indicate units if different from µg/L.

TABLE 6 (Instructions, Page 56)

Completion of Table 6 is required for all external outfalls but is not required for internal outfalls.

Table 6 for Outfall No.: 001

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutants	Believed Present	Believed Absent	Average Concentration (mg/L)	Maximum Concentration (mg/L)	No. of Samples	MAL (µg/L)*
Bromide	☐	☒				400
Color (PCU)	☐	☒				—
Nitrate-Nitrite (as N)	☒	☐		1.72	1	—
Sulfide (as S)	☐	☒				—
Sulfite (as SO3)	☒	☐		<2.00	1	—
Surfactants	☐	☒				—
Boron, total	☒	☐		0.729	1	20
Cobalt, total	☐	☒				0.3
Iron, total	☒	☐		0.426	1	7
Magnesium, total	☒	☐		48.3	1	20
Manganese, total	☒	☐		0.0217	1	0.5
Molybdenum, total	☒	☐		0.0135	1	1
Tin, total	☐	☒				5
Titanium, total	☐	☒				30

* Indicate units if different from µg/L.

TABLE 7 (Instructions, Page 56)

Indicate any of the industrial categories applicable to your facility; otherwise, check the "N/A" box below. If GC/MS testing is required, indicate with an 'x' in the box provided that the testing results for the appropriate parameters are provided with the application.

☐ N/A

Table 7 for Applicable Industrial Categories

Industrial Category	40 CFR Part	Volatiles Table 8	Acids Table 9	Bases/Neutrals Table 10	Pesticides Table 11
☐ Adhesives and Sealants		☐ Yes	☐ Yes	☐ Yes	No
☐ Aluminum Forming	467	☐ Yes	☐ Yes	☐ Yes	No
☐ Auto and Other Laundries		☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Battery Manufacturing	461	☐ Yes	No	☐ Yes	No
☐ Coal Mining	434	No	No	No	No
☐ Coil Coating	465	☐ Yes	☐ Yes	☐ Yes	No
☐ Copper Forming	468	☐ Yes	☐ Yes	☐ Yes	No
☐ Electric and Electronic Components	469	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Electroplating	413	☐ Yes	☐ Yes	☐ Yes	No
☐ Explosives Manufacturing	457	No	☐ Yes	☐ Yes	No
☐ Foundries		☐ Yes	☐ Yes	☐ Yes	No
☐ Gum and Wood Chemicals - Subparts A,B,C,E	454	☐ Yes	☐ Yes	No	No
☐ Gum and Wood Chemicals - Subparts D,F	454	☐ Yes	☐ Yes	☐ Yes	No
☐ Inorganic Chemicals Manufacturing	415	☐ Yes	☐ Yes	☐ Yes	No
☐ Iron and Steel Manufacturing	420	☐ Yes	☐ Yes	☐ Yes	No
☐ Leather Tanning and Finishing	425	☐ Yes	☐ Yes	☐ Yes	No
☐ Mechanical Products Manufacturing		☐ Yes	☐ Yes	☐ Yes	No
☐ Nonferrous Metals Manufacturing	421,471	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Ore Mining - Subpart B	440	No	☐ Yes	No	No
☐ Organic Chemicals Manufacturing	414	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Paint and Ink Formulation	446,447	☐ Yes	☐ Yes	☐ Yes	No
☐ Pesticides	455	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Petroleum Refining	419	☐ Yes	No	No	No
☐ Pharmaceutical Preparations	439	☐ Yes	☐ Yes	☐ Yes	No
☐ Photographic Equipment and Supplies	459	☐ Yes	☐ Yes	☐ Yes	No
☐ Plastic and Synthetic Materials Manufacturing	414	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Plastic Processing	463	☐ Yes	No	No	No
☐ Porcelain Enameling	466	No	No	No	No
☐ Printing and Publishing		☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Pulp and Paperboard Mills - Subpart C	430	☐ *	☐ Yes	☐ *	☐ Yes
☐ Pulp and Paperboard Mills - Subparts F, K	430	☐ *	☐ Yes	☐ *	☐ *
☐ Pulp and Paperboard Mills - Subparts A, B, D, G, H	430	☐ Yes	☐ Yes	☐ *	☐ *
☐ Pulp and Paperboard Mills - Subparts I, J, L	430	☐ Yes	☐ Yes	☐ *	☐ Yes
☐ Pulp and Paperboard Mills - Subpart E	430	☐ Yes	☐ Yes	☐ Yes	☐ *
☐ Rubber Processing	428	☐ Yes	☐ Yes	☐ Yes	No
☐ Soap and Detergent Manufacturing	417	☐ Yes	☐ Yes	☐ Yes	No
☒ Steam Electric Power Plants	423	☒ Yes	☒ Yes	No	No
☐ Textile Mills (Not Subpart C)	410	☐ Yes	☐ Yes	☐ Yes	No
☐ Timber Products Processing	429	☐ Yes	☐ Yes	☐ Yes	☐ Yes

* Test if believed present.

TABLES 8, 9, 10, and 11 (Instructions, Pages 56-57)

Completion of Tables 8, 9, 10, and 11 **is required** as specified in Table 7 for all external outfalls that contain process wastewater.

Completion of Tables 8, 9, 10, and 11 **is not required** for internal outfalls.

Completion of Tables 8, 9, 10, and 11 **may be required** for types of industry not specified in Table 7 for specific parameters that are believed to be present in the wastewater.

Table 8 for Outfall No.: 001: Volatile Compounds

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Average (µg/L)*	Maximum (µg/L)*	No. of Samples	MAL (µg/L)
Acrolein		<5.00	1	50
Acrylonitrile	<1.00	<1.00	4	50
Benzene	<1.00	<1.00	4	10
Bromoform	<1.00	<1.00	4	10
Carbon tetrachloride	<1.00	<1.00	4	2
Chlorobenzene	<1.00	<1.00	4	10
Chlorodibromomethane	<1.00	<1.00	4	10
Chloroethane		<1.00	1	50
2-Chloroethylvinyl ether		<1.00	1	10
Chloroform	<1.00	<1.00	4	10
Dichlorobromomethane [Bromodichloromethane]	<1.00	<1.00	4	10
1,1-Dichloroethane		<1.00	1	10
1,2-Dichloroethane	<1.00	<1.00	4	10
1,1-Dichloroethylene [1,1-Dichloroethene]	<1.00	<1.00	4	10
1,2-Dichloropropane	<1.00	<1.00	4	10
1,3-Dichloropropylene [1,3-Dichloropropene]	<1.00	<1.00	4	10
Ethylbenzene	<1.00	<1.00	4	10
Methyl bromide [Bromomethane]		<1.00	1	50
Methyl chloride [Chloromethane]		<1.00	1	50
Methylene chloride [Dichloromethane]	<1.00	<1.00	4	20
1,1,2,2-Tetrachloroethane	<1.00	<1.00	4	10
Tetrachloroethylene [Tetrachloroethene]	<1.00	<1.00	4	10
Toluene	<1.00	<1.00	4	10
1,2-Trans-dichloroethylene [1,2-Trans-dichloroethene]		<1.00	1	10
1,1,1-Trichloroethane	<1.00	<1.00	4	10
1,1,2-Trichloroethane	<1.00	<1.00	4	10
Trichloroethylene [Trichloroethene]	<1.00	<1.00	4	10
Vinyl chloride	<1.00	<1.00	4	10

Table 9 for Outfall No.: 001: Acid Compounds

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Average (µg/L)*	Maximum (µg/L)*	No. of Samples	MAL (µg/L)
2-Chlorophenol		<1.04	1	10
2,4-Dichlorophenol		<1.04	1	10
2,4-Dimethylphenol		<2.08	1	10
4,6-Dinitro-o-cresol		<1.04	1	50
2,4-Dinitrophenol		<1.04	1	50
2-Nitrophenol		<1.04	1	20
4-Nitrophenol		<1.04	1	50
p-Chloro-m-cresol		<1.04	1	10
Pentachlorophenol	<2.06	<1.02	4	5
Phenol		<1.04	1	10
2,4,6-Trichlorophenol		<1.04	1	10

Table 10 for Outfall No.: 001: Base/Neutral Compounds

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Average (µg/L)*	Maximum (µg/L)*	No. of Samples	MAL (µg/L)
Acenaphthene				10
Acenaphthylene				10
Anthracene				10
Benzidine	<4.26	<1.54	4	50
Benzo(a)anthracene				5
Benzo(a)pyrene				5
3,4-Benzofluoranthene [Benzo(b)fluoranthene]				10
Benzo(ghi)perylene				20
Benzo(k)fluoranthene				5
Bis(2-chloroethoxy)methane				10
Bis(2-chloroethyl)ether				10
Bis(2-chloroisopropyl)ether				10
Bis(2-ethylhexyl)phthalate				10
4-Bromophenyl phenyl ether				10
Butylbenzyl phthalate				10
2-Chloronaphthalene				10
4-Chlorophenyl phenyl ether				10
Chrysene	<1.03	<1.02	4	5
Dibenzo(a,h)anthracene				5
1,2-Dichlorobenzene [o-Dichlorobenzene]				10
1,3-Dichlorobenzene [m-Dichlorobenzene]				10
1,4-Dichlorobenzene [p-Dichlorobenzene]	<1.01	<1.01	4	10

Pollutant	Average (µg/L)*	Maximum (µg/L)*	No. of Samples	MAL (µg/L)
3,3'-Dichlorobenzidine				5
Diethyl phthalate				10
Dimethyl phthalate				10
Di-n-butyl phthalate				10
2,4-Dinitrotoluene				10
2,6-Dinitrotoluene				10
Di-n-octyl phthalate				10
1,2-Diphenylhydrazine (as Azobenzene)				20
Fluoranthene				10
Fluorene				10
Hexachlorobenzene	<1.03	<1.02	4	5
Hexachlorobutadiene	<1.04	<1.02	4	10
Hexachlorocyclopentadiene				10
Hexachloroethane	<1.29	<1.02	4	20
Indeno(1,2,3-cd)pyrene				5
Isophorone				10
Naphthalene				10
Nitrobenzene	<1.03	<1.02	4	10
N-Nitrosodimethylamine				50
N-Nitrosodi-n-propylamine				20
N-Nitrosodiphenylamine				20
Phenanthrene	<1.03	<1.02	4	10
Pyrene				10
1,2,4-Trichlorobenzene				10

Table 11 for Outfall No.: : Pesticides

Samples are (check one): ☐ Composites ☐ Grabs

Pollutant	Average (µg/L)*	Maximum (µg/L)*	No. of Samples	MAL (µg/L)
Aldrin				0.01
alpha-BHC [alpha-Hexachlorocyclohexane]				0.05
beta-BHC [beta-Hexachlorocyclohexane]				0.05
gamma-BHC [gamma-Hexachlorocyclohexane]				0.05
delta-BHC [delta-Hexachlorocyclohexane]				0.05
Chlordane				0.2
4,4'-DDT				0.02
4,4'-DDE				0.1
4,4'-DDD				0.1
Dieldrin				0.02
Endosulfan I (alpha)				0.01
Endosulfan II (beta)				0.02

Pollutant	Average (µg/L)*	Maximum (µg/L)*	No. of Samples	MAL (µg/L)
Endosulfan sulfate				0.1
Endrin				0.02
Endrin aldehyde				0.1
Heptachlor				0.01
Heptachlor epoxide				0.01
PCB 1242				0.2
PCB 1254				0.2
PCB 1221				0.2
PCB 1232				0.2
PCB 1248				0.2
PCB 1260				0.2
PCB 1016				0.2
Toxaphene				0.3

* Indicate units if different from µg/L

TABLE 12 (DIOXINS/FURAN COMPOUNDS)

Complete Table 12 as directed. Table 12 is not required for internal outfalls. (Instructions, Pages 57-58)

a. Are any of the following compounds manufactured or used in a process at the facility?

☐ Yes ☒ No

If **yes**, indicate which compound(s) are manufactured or used at the facility and provide a brief description of the conditions of its/their presence at the facility.

☐	2,4,5-trichlorophenoxy acetic acid	(2,4,5-T)	CASRN 93-76-5
☐	2-(2,4,5-trichlorophenoxy) propanoic acid	(Silvex, 2,4,5-TP)	CASRN 93-72-1
☐	2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate	(Erbon)	CASRN 136-25-4
☐	0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate	(Ronnel)	CASRN 299-84-3
☐	2,4,5-trichlorophenol	(TCP)	CASRN 95-95-4
☐	hexachlorophene	(HCP)	CASRN 70-30-4

Description:

b. Do you know or have any reason to believe that 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) or any congeners of TCDD may be present in your effluent?

☐ Yes ☐ No

If yes, provide a brief description of the conditions for its presence.

c. If you responded **yes** to either Item a **or** b, complete Table 12 as instructed.

Table 12 for Outfall No.:

Samples are (check one): ☐ **Composites** ☐ **Grabs**

Compound	Toxicity Equivalent Factors	Wastewater Concentration (ppq)	Wastewater Toxicity Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Toxicity Equivalents (ppt)	MAL (ppq)
2,3,7,8-TCDD	1					10
1,2,3,7,8-PeCDD	0.5					50
2,3,7,8-HxCDDs	0.1					50
1,2,3,4,6,7,8-HpCDD	0.01					50
2,3,7,8-TCDF	0.1					10
1,2,3,7,8-PeCDF	0.05					50
2,3,4,7,8-PeCDF	0.5					50
2,3,7,8-HxCDFs	0.1					50
2,3,4,7,8-HpCDFs	0.01					50
OCDD	0.0003					100
OCDF	0.0003					100
PCB 77	0.0001					500
PCB 81	0.0003					500
PCB 126	0.1					500
PCB 169	0.03					500
Total						

TABLE 13 (HAZARDOUS SUBSTANCES)

Complete Table 13 as directed. Not required for internal outfalls. (Instructions, Pages 58-59)

a. Are there any pollutants listed in the instructions (page 60) believed present in the discharge?

☐ Yes ☒ No

b. Are there pollutants listed in Item 1.d. on page 1 of this technical report which are believed present in the discharge and have not been analytically quantified elsewhere in this application?

☐ Yes ☒ No

If you responded **yes** to **either** Item a **or** b, complete Table 13 as instructed.

Table 13 for Outfall No.:

Samples are (check one): ☐ **Composites** ☐ **Grabs**

Pollutant	CASRN	Average (µg/L)	Maximum (µg/L)	No. of Samples	Analytical Method

WORKSHEET 3.0
LAND APPLICATION OF EFFLUENT

This worksheet **is required** for all renewal, amendment, and new applications for a permit to dispose of wastewater by land application.

1. TYPE OF DISPOSAL SYSTEM (Instructions, Page 67)

Indicate the type of land disposal being proposed.

- ☐ Irrigation
- ☐ Evaporation
- ☐ Evapotranspiration beds
- ☐ Drip irrigation system
- ☐ Subsurface application
- ☐ Subsurface soils absorption
- ☐ Surface application
- ☐ Other (describe below in detail):

2. LAND APPLICATION AREA (Instructions, Page 67)

Land Application Area Information

Effluent Application (gallons/day)	Irrigation Acreage (acres)	Describe land use & indicate type(s) of crop(s)	Public Access? (Y/N)

3. ANNUAL CROPPING PLAN (Instructions, Page 67)

Attach the required cropping plan that includes each of the following:

- Cool and warm season plant species
- Crop growing season
- Harvesting method/number of harvests
- Minimum/maximum harvest height
- Crop yield goals
- Soils map
- Break down of acreage and percent of total acreage for each crop
- Nitrogen requirements per crop
- Additional fertilizer requirements
- Supplemental watering requirements
- Crop salt tolerances
- Justification for not removing existing vegetation to be irrigated

Attachment:

4. STORMWATER MANAGEMENT (Instructions, Page 68)

Is stormwater runoff a component of the effluent disposed of via land application?

☐ Yes ☐ No

If **yes**, provide the following information:

Stormwater Management Disposal Areas

Disposal Area	Area Contributing Runoff (acres)	Primary Soil Type	Cover Type (i.e. pasture, row crop land, concrete slab, etc.)

If **no**, provide a description of tailwater controls and stormwater run-on controls used for the disposal area.

5. WELL AND MAP INFORMATION (Instructions, Page 68)

Indicate that the following information is shown and labeled on the USGS map:

- ☐ The boundaries of the land application site(s)
- ☐ On-site buildings
- ☐ Waste-disposal or treatment facilities
- ☐ All water wells within ½-mile radius of the disposal site or property boundaries
- ☐ All springs and seeps onsite and within 500 feet of the property
- ☐ All surface waters in the state onsite and within 500 feet of the property
- ☐ Effluent storage and tailwater control facilities
- ☐ Buffer zones

List and cross reference all water wells located on or within 500 feet of the disposal site or property boundaries in the following table. Attach additional pages as necessary to include all of the wells.

Well Map Information

Well ID	Well Use	Producing? Y/N	Open, cased, capped, or plugged?	Proposed Best Management Practice

Do you plan to install groundwater monitoring wells or lysimeters around the land application site?

☐ Yes ☐ No

If **yes**, provide the proposed location of the monitoring wells or lysimeters on a site map.

6. SOIL MAP AND SOIL INFORMATION (Instructions, Page 69)

Indicate that the following information was provided:

☐ USDA Soil Survey map that indicates the area to be used for land application with the locations identified by fields and crops

☐ Breakdown of acreage and percent of total acreage for each soil type

☐ Copies of laboratory soil analyses

7. LABORATORY ACCREDITATION CERTIFICATION (Instructions, Page 70)

Effective July 1, 2008, all laboratory tests performed must meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification* with the following general exemptions:

a. The laboratory is an in-house laboratory and is:

   1. periodically inspected by the TCEQ; or
   2. located in another state and is accredited or inspected by that state; or
   3. performing work for another company with a unit located in the same site; or
   4. performing pro bono work for a governmental agency or charitable organization.

b. The laboratory is accredited under federal law.

c. The data are needed for emergency-response activities, and a laboratory accredited under the Texas Laboratory Accreditation Program is not available.

d. The laboratory supplies data for which the TCEQ does not offer accreditation.

The applicant should review *30 TAC Chapter 25* for specific requirements. The following certification statement shall be signed and submitted with every application. See Instructions, Page 32, for a list of designated representatives who may sign the certification.

I,_____, certify that all laboratory tests submitted with this application meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification.*

8. EFFLUENT MONITORING DATA (Instructions, Page 70)

Completion of Table 14 **is required** for all renewal and amendment applications. Provide monitoring data for the previous two years for all parameters regulated in the permit. A table with blank headers has been provided for parameters that are not listed in the first table.

Table 14 for Site No.:

Samples are (check one): ☐ **Composites** ☐ **Grabs**

Date (mo/yr)	Daily Avg Flow (gpd)	BOD5 (mg/L)	TSS (mg/L)	Nitrogen (mg/L)	Conductivity (mmhos/cm)	Total acres irrigated	Hydraulic Application rate (acre-feet/month)

Attach an explanation of all persistent excursions to permitted parameters and corrective actions taken.

Attachment:

Use this table to provide effluent analysis for parameters not listed in the table above.

Additional Parameter Effluent Analysis

Date (mo/yr)							

Attach an explanation of all persistent excursions to permitted parameters and corrective actions taken.

Attachment:

9. POLLUTANT ANALYSIS (Instructions, Page 70)

Completion of Tables 15 and 16 is **required** for all permit applications for the authorization of land application of effluent.

Table 15 for Site No.:

Samples are (check one): ☐ **Composites** ☐ **Grabs**

Pollutant	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)	Average (mg/L)
BOD (5-day)					
CBOD (5-day)					
Chemical oxygen demand					
Total organic carbon					
Ammonia nitrogen					
Total suspended solids					
Nitrate nitrogen					
Total organic nitrogen					
Total phosphorus					
Oil and grease					
Total residual chlorine					
Total dissolved solids					
Sulfate					
Chloride					
Fluoride					
Fecal Coliform (cfu/100 mL)					
Specific conductance (mmhos/cm)					
pH (standard units; min/max)					
Soluble sodium					
Soluble calcium					
Soluble magnesium					
SAR (unitless)					

Table 16: for Site No.:

Samples are (check one): ☐ **Composites** ☐ **Grabs**

Pollutant	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	Average (µg/L)	MAL (µg/L)
Aluminum, total						2.5
Antimony, total						5
Arsenic, total						0.5
Barium, total						3
Beryllium, total						0.5
Boron, total						20
Cadmium, total						1
Chromium, total						3
Chromium, hexavalent						3
Chromium, trivalent						N/A
Copper, total						2
Cyanide						2/10
Lead, total						0.5
Mercury, total						0.005/0.0005
Nickel, total						2
Selenium, total						5
Silver, total						0.5
Thallium, total						0.5
Zinc, total						5.0

WORKSHEET 3.1
SURFACE LAND APPLICATION AND EVAPORATION

This worksheet **is required** for all renewal, amendment, and new applications for a permit to dispose of wastewater by surface land application.

1. SURFACE SPRAY (Instructions, Page 71)

Area under irrigation (acres):

Design application rate (acre-ft/acre/yr):

Design application frequency (hours/day):

Design application frequency (days/week):

Design total nitrogen loading rate (lbs nitrogen/acre/year):

Average slope of the application area (percent):

Maximum slope of the application area (percent):

Irrigation efficiency (percent):

Effluent conductivity (mmhos/cm):

Soil conductivity (mmhos/cm):

Curve number:

Method of Application:

Attach a detailed engineering report with water balance, storage volume calculations, and nitrogen balance.

Attachment:

2. EVAPORATION PONDS (Instructions, Page 72)

Daily average effluent flow into ponds: gallons per day

Attach a separate engineering report with water balance and storage volume calculations.

Attachment:

3. EVAPOTRANSPIRATION BEDS (Instructions, Page 72)

Number of beds:

Area of bed(s) (acres):

Depth of bed(s) (feet):

Void ratio of soil in the beds:

Storage volume within the beds (include units):

Attach a certification by a licensed Texas professional engineer that the liner meets TCEQ requirements.

Attachment:

Attach a separate engineering report with water balance, storage volume calculations, and description of the liner.

Attachment:

4. OVERLAND FLOW (Instructions, Page 72)

Area used for application (acres):

Slopes for application area (percent):

Design application rate (gpm/foot of slope width):

Slope length (feet):

Design BOD5 loading rate (lbs BOD5/acre/day):

Design application frequency (hours/day):

Design application frequency (days/week):

Attach a separate engineering report with the method of application and design requirements according to *30 TAC § 217.212*.

Attachment:

5. EDWARDS AQUIFER RECHARGE AREA (Instructions, Page 72)

Is the facility subject to *30 TAC Chapter 213, Edwards Aquifer Rules*?

☐ Yes ☐ No

Attach a report that describes the surface geological units present in the proposed land application site and identify the location and extent of any significant regard areas in the land application site.

Attachment:

WORKSHEET 3.2
SUBSURFACE IRRIGATION SYSTEMS (NON-DRIP)

This worksheet **is required** for all renewal, amendment, and new applications for a permit to dispose of wastewater by subsurface land application.

This worksheet **is not required** for systems that meet the definition of a Subsurface Area Drip Dispersal System as defined in *30 TAC Chapter 222*.

☐ Indicate with an 'x' in the box that the Class V Injection Well Inventory/Authorization Form (Worksheet 9.0) for this type of disposal system has been submitted to the TCEQ UIC Permits Team as directed.

1. SUBSURFACE APPLICATION (Instructions, Page 73)

Indicate the type of subsurface land disposal system you use or are proposing to use:

☐ Conventional drainfield, beds, or trenches

☐ Low pressure dosing

☐ Other:

Provide the following information:

Application area (acres):

Area of drainfield (square feet):

Application rate (gal/square ft/day):

Depth to groundwater (feet):

Area of trench (square feet):

Dosing duration per area (hours):

Number of beds:

Dosing amount per area (inches/day):

Soil infiltration rate (inches/hour):

Storage volume (gallons):

Area of bed(s) (square feet):

Soil classification:

Attach a separate engineering report with all necessary information and a description of the schedule of dosing basin rotation.

Attachment:

2. EDWARDS AQUIFER RECHARGE AREA (Instructions, Page 73)

a. Is the subsurface system located on the Edwards Aquifer Recharge Zone, as mapped by the TCEQ?

☐ Yes ☐ No

b. Is the subsurface system located on the Edwards Aquifer Transition Zone, as mapped by the TCEQ?

☐ Yes ☐ No

If **yes** to **either** question, the subsurface system may be prohibited by *30 TAC § 213.8*. Please call the Industrial Permits Team to schedule a pre-application meeting.

WORKSHEET 3.3
SUBSURFACE AREA DRIP DISPERSAL SYSTEMS

This worksheet **is required** for all renewal, amendment, and new applications for a permit to dispose of wastewater using a subsurface area drip dispersal system.

☐ Indicate with an 'x' in the box that the Class V Injection Well Inventory/Authorization Form (Worksheet 9.0) for this type of disposal system has been submitted to the TCEQ UIC Permits Team as directed.

1. ADMINISTRATIVE INFORMATION (Instructions, Page 74)

a. Provide the legal name of all corporations or other business entities managed, owned, or otherwise closely related to the owner of the treatment facility.

b. Is the owner of the land where the treatment facility is located the same as the owner of the treatment facility?

☐ Yes ☐ No

If **no**, provide the legal name of all corporations or other business entities managed, owned, or otherwise closely related to the owner of the land where the treatment facility is located.

c. Owner of the subsurface area drip dispersal system:

d. Is the owner of the subsurface area drip dispersal system the same as the owner of the wastewater treatment facility or the site where the wastewater treatment facility is located?

☐ Yes ☐ No

If **no**, identify the names of all corporations or other business entities managed, owned, or otherwise closely related to the entity identified in Item 1.c.

e. Owner of the land where the subsurface area drip dispersal system is located:

f. Is the owner of the land where the subsurface area drip dispersal system is located the same as owner of the wastewater treatment facility, the site where the wastewater treatment facility is located, or the owner of the subsurface area drip dispersal system?

☐ Yes ☐ No

If **no**, identify the name of all corporations or other business entities managed, owned, or otherwise closely related to the entity identified in item 1.e.

2. SUBSURFACE AREA DRIP DISPERSAL SYSTEM (Instructions, Page 75)

a. Check the type of system you use or are proposing to use:

☐ Subsurface drip/trickle irrigation

☐ Surface drip irrigation

☐ Other:

b. Provide the following information:

Application area (acres):

Soil infiltration rate (inches/hour):

Average slope of the application area:

Maximum slope of the application area:

Storage volume (gallons):

Major soil series:

Depth to groundwater (feet):

Effluent conductivity (mmhos/cm):

c. Is the facility located west of the boundary shown in *30 TAC § 222.83* and using a vegetative cover of non-native grasses overseeded with cool-season grasses?

☐ Yes ☐ No

If **yes**, the facility may propose a hydraulic application rate not to exceed 0.1 gal/square foot/day.

d. Is the facility located east of the boundary shown in *30 TAC § 222.83* or is the facility proposing any crop other than non-native grasses?

☐ Yes ☐ No

If **yes**, the facility must use the formula in *30 TAC § 222.83* to calculate the maximum hydraulic application rate.

e. Do you plan to submit an alternative method to calculate the hydraulic application rate for approval by the executive director?

☐ Yes ☐ No

If yes, provide the following information:

- Hydraulic application rate (gal/square foot/day):
- Nitrogen application rate (gal/square foot/day):

f. Provide the following dosing information:

Number of doses per day:

Dosing duration per area (hours):

Rest period between doses:

Dosing amount per area (inches/day):

Number of zones:

Is the proposed system is a surface drip irrigation system proposing to use existing native vegetation as a crop?

☐ Yes ☐ No

If **yes**, attach the following:

- a vegetation survey by a certified arborist describing the percent canopy cover and relative percentage of major overstory and understory plant species.

  Attachment:

- a separate engineering report with all necessary information and a description of the schedule of dosing basin rotation.

  Attachment:

3. REQUIRED PLANS (Instructions, Page 76)

a. Attach a Recharge Feature Plan with all information required in *30 TAC § 222.79*.

Attachment:

b. Attach a Soil Evaluation with all information required in *30 TAC § 222.73*.

Attachment:

c. Attach a Site Preparation Plan with all information required in *30 TAC § 222.75*.

Attachment:

d. Provide soil sampling and testing with all information required in *30 TAC § 222.157*.

Attachment:

4. FLOOD AND RUN-ON PROTECTION (Instructions, Page 76)

a. Is the existing/proposed subsurface area drip dispersal system located within the 100-year frequency flood level?

☐ Yes ☐ No

Source:

If **yes**, describe how the site will be protected from inundation.

b. Is the existing/proposed subsurface area drip dispersal system within a designated floodway?

☐ Yes ☐ No

☐ If **yes**, indicate with an 'x' in the box that either the FEMA flood map or alternate information used to make this determination is included with the application. Include the attachment number.

Attachment:

5. SUBSURFACE WATERS IN THE STATE (Instructions, Page 77)

a. Buffer Map

Attach a map showing appropriate buffers on surface waters in the state, water wells, and springs/seeps.

Attachment:

b. Buffer variance request

Do you plan to request a buffer variance from water wells or waters in the state?

☐ Yes ☐ No

If **yes**, then attach the additional information required in *30 TAC § 222.81(c).*

Attachment:

6. EDWARDS AQUIFER RECHARGE AREA (Instructions, Page 77)

a. Is the subsurface area drip dispersal system located on the Edwards Aquifer Recharge Zone, as mapped by the TCEQ?

☐ Yes ☐ No

b. Is the subsurface area drip dispersal system located on the Edwards Aquifer Transition Zone, as mapped by the TCEQ?

☐ Yes ☐ No

If **yes** to **either** question, the subsurface area drip dispersal system may be prohibited by *30 TAC § 213.8.* Please call the Industrial Permits Team to schedule a pre-application meeting.

WORKSHEET 4.0
RECEIVING WATERS

This worksheet **is required** for all renewal, amendment, and new TPDES permit applications.

1. DOMESTIC DRINKING WATER SUPPLY (Instructions, Page 78)

Is there a surface water intake for domestic drinking water supply located within 5 (five) miles downstream from the point/proposed point of discharge?

☐ Yes ☒ No

If **yes**, identify owner of the drinking water supply, the distance and direction to the intake, and locate and identify the intake on the USGS map.

☐ Indicate with an 'x' in the box that the requested information is provided.

2. DISCHARGE INTO TIDALLY INFLUENCED WATERS (Instructions, Page 78)

a. Width of the receiving water at the outfall? N/A feet

b. Are there oyster reefs in the vicinity of the discharge?

☐ Yes ☒ No

If **yes**, indicate approximate distance and direction from outfall(s):

c. Are there any sea grasses within the vicinity of the point of discharge?

☐ Yes ☒ No

If **yes**, provide the distance and direction to the grasses:

3. CLASSIFIED SEGMENT (Instructions, Page 78)

Is the discharge directly into (or within 300 feet of) a classified segment?

☐ Yes ☒ No

If **yes, stop here**. It is not necessary to complete Items 4 and 5, and it is not necessary to complete Worksheet 4.1.

If **no**, complete Items 4 and 5.

4. DESCRIPTION OF IMMEDIATE RECEIVING WATERS (Instructions, Page 79)

Name of the immediate receiving waters: Morales Banco No. 133 Levee

a. Check the appropriate description of the receiving waters

☐ Lake or Pond

Surface area (acres):

Average depth of the entire water body (feet):

Average depth of water body within a 500-foot radius of the discharge point (feet):

☐ Stream or Creek

☐ Freshwater Swamp or Marsh

☐ Tidal Stream, Bayou, or Marsh

☐ Open Bay

☒ Other: A heavily vegetated & dry Resaca in a horse shoe shape.

☐ Man-made Channel or Ditch

If you checked "man-made channel or ditch" or "stream or creek" above, provide responses to items b - e below:

b. For existing discharges, check the description below that best characterizes the area upstream of the discharge.

For new discharges, check the description below that best characterizes the area downstream of the discharge.

☐ Intermittent (dry for at least one week during most years)

☐ Intermittent with Perennial Pools (enduring pools containing habitat to maintain aquatic life uses)

☐ Perennial (normally flowing)

Check the source(s) of the information used to characterize the area upstream (existing discharge) or downstream (new discharge):

☐ USGS flow records

☐ personal observation

☐ historical observation by adjacent landowner(s)

☐ others, specify:

c. List the names of all perennial streams that join the receiving water within three miles downstream of the discharge point:

d. Do the receiving water characteristics change within three miles downstream of the discharge? (e.g., natural or man-made dams, ponds, reservoirs, etc.)

☐ Yes ☐ No

If yes, discuss how:

e. Provide general observations of the water body during normal dry weather conditions:

An approximate 28 acre dry and highly vegetated horseshoe Resaca. The existing Resaca with a berm around the top to an elevation of 45 feet would impound an estimated 97 million gallons.

Date and time of observation: 01/07/2019

Was water body influenced by stormwater runoff during observations?

☐ Yes ☒ No

5. GENERAL CHARACTERISTICS OF WATER BODY (Instructions, Page 79)

a. Is the receiving water upstream of the existing discharge or proposed discharge site influenced by (check as appropriate):

☐ oil field activities
☒ agricultural runoff
☐ upstream discharges
☐ urban runoff
☐ septic tanks
☐ others, specify:

b. Uses of water body observed or evidence of such uses (check as appropriate):

☐ livestock watering
☐ non-contact recreation
☐ domestic water supply
☐ contact recreation
☐ fishing
☐ industrial water supply
☐ irrigation withdrawal
☐ navigation
☐ picnic park activities
☒ others, specify: The point of discharge is a dry, highly vegetative (native vegetation) Resaca. Resaca remains dry over 99% of the year.

c. Check the description (only one) that best describes the aesthetics of the receiving water and the surrounding area:

☐ Wilderness: outstanding natural beauty; usually wooded or unpastured area: water clarity exceptional
☒ Natural Area: trees or native vegetation common; some development evident (from fields, pastures, dwellings); water clarity discolored
☐ Common Setting: not offensive, developed but uncluttered; water may be colored or turbid
☐ Offensive: stream does not enhance aesthetics; cluttered; highly developed; dumping areas; water discolored

WORKSHEET 4.1
STREAM PHYSICAL CHARACTERISTICS

The following information **is required** for all new applications, all major facilities, and any applications requesting to add an outfall if the receiving waters are **perennial** or **intermittent with perennial pools.**

Date of study: Time of study:

Stream name:

Location:

Type of stream upstream of existing discharge or downstream of proposed discharges, (check one):

☐ **perennial** ☐ **intermittent with perennial pools**

Complete the transects downstream of the existing or proposed discharges.

1. DATA COLLECTION (Instructions, Pages 80-81)

No. of defined stream bends:

Well: Moderately: Poorly:

No. of riffles:

Evidence of Flow fluctuations (check one):

Minor: Moderate: Severe:

Indicate the observed stream uses and if there is evidence or flow fluctuations or channel obstructions/modifications:

Stream Transect Data

Transect Location	Habitat Type*	Water Surface Width (ft)	Stream Depths (ft)**								

* riffle, run, glide, or pool

** channel bed to water surface

2. SUMMARIZE MEASUREMENTS (Instructions, Page 81)

Streambed slope of entire reach (from USGS map in ft. /ft.):

Approximate drainage area above the most downstream transect from USGS map or county highway map (square miles):

Length of stream evaluated (ft):

Number of lateral transects made:

Average stream width (ft):

Average stream depth (ft):

Average stream velocity (ft/sec):

Instantaneous stream flow (ft^3/sec):

Indicate flow measurement method (VERY IMPORTANT – type of meter, floating chip timed over a fixed distance, etc.):

Flow fluctuations (minor, moderate, severe):

Size of pools (large, small, moderate, none):

Maximum pool depth (ft):

Total number of stream bends:

- Number well defined:
- Number moderately defined:
- Number poorly defined:

Total number of riffles:

WORKSHEET 5.0
SEWAGE SLUDGE MANAGEMENT AND DISPOSAL

The following information **is required** for all TPDES permit applications that meet the conditions as outlined in Technical Report 1.0, Item 7.

1. SEWAGE SLUDGE SOLIDS MANAGEMENT PLAN (Instructions, Page 82)

a. Is this a new permit application or an amendment permit application?

☐ Yes ☐ No

b. Does the facility discharge in the Lake Houston watershed?

☐ Yes ☐ No

If yes to either Item a or b, attach a solids management plan.

Attachment::

2. SEWAGE SLUDGE MANAGEMENT AND DISPOSAL (Instructions, Page 83)

a. Please check the current sludge disposal method(s). More than one method can be checked.

☐ Permitted landfill

☐ Marketing and distribution by the permittee

☐ Registered land application site

☐ Composted by the permittee

☐ Surface disposal site (sludge monofill)

☐ Transported to another WWTP (written statement or contractual agreement required)

☐ Beneficial land application as authorized in the existing permit

b. Disposal site name:

TCEQ Permit/Registration Number:

County where disposal site is located:

c. Method of transportation (truck, train, pipe, other):

Hauler Registration Number:

Sludge is transported as a:

☐ liquid

☐ semi-liquid

☐ semi-solid

☐ solid

Purpose of land application (check one): ☐ reclamation ☐ soil conditioning

Provide a written statement or copy of contractual agreements confirming that the wastewater treatment plant identified above will accept and be responsible for the sludge from the plant for the life of the permit (at least 5 years).

Attachment:

d. If the existing permit contains authorization for sludge land application, composting, marketing and distribution of sludge, or sludge lagoons and authorization to renew the activity is being sought in the application, the appropriate sections of the Sewage Sludge Technical Report (form TCEQ-10056) must be provided.

3. PERMIT AUTHORIZATION FOR SEWAGE SLUDGE DISPOSAL (Instructions, Page 83)

Are you requesting new authorization to beneficially land apply sewage sludge at this site or a site under your direct control?

☐ Yes ☐ No

Are you requesting new authorization to market and distribute sewage sludge at this facility or a facility under your direct control?

☐ Yes ☐ No

Are you requesting new authorization to compost sewage sludge?

☐ Yes ☐ No

Are you requesting new authorization to surface dispose sewage sludge at this site or site under your direct control?

☐ Yes ☐ No

Are you requesting new authorization to incinerate sewage sludge at this site or site under your direct control?

☐ Yes ☐ No

If **yes** to **any** of the above items, provide the information required in the *Sewage Sludge Technical Report* (form TCEQ-10056).

Attachment:

New authorization for beneficial land application, incineration, and sludge lagoons in the TPDES permit or TLAP **requires a major amendment to the permit**. New authorization for composting may require a major amendment to the permit. See the instructions for an explanation whether a major amendment is required or if authorization for composting can be added through the renewal process.

WORKSHEET 6.0
INDUSTRIAL WASTE CONTRIBUTION

1. ALL POTWS (Instructions, Page 84)

a. Provide the number of each of the following types of industrial users (IUs) that discharge to your POTW and the daily average flows from each. See Definitions for Categorical IU (CIU), Significant IU (SIU) – Non-Categorical, and Other IU.

Industrial User Information

Type of Industrial User	Number of Industrial Users	Daily Average Flow (gallons per day)
CIU		
SIU - Non-categorical		
Other IU		

b. In the past three years, has your POTW experienced treatment plant interference as defined in the Definition section of the instructions?

☐ Yes ☐ No

If **yes**, identify the date(s), duration, nature of interference, and probable cause(s) and possible source(s) of each interference event. Include the names of the IU(s) that may have caused the interference. Submit an attachment if necessary.

Attachment: Click here to enter text

c. In the past three years, has your POTW experienced pass through as defined in the Definitions relating to Pretreatment section of the instructions (see page 13)?

☐ Yes ☐ No

If **yes**, identify the date(s), duration, pollutants passing through the treatment plant, and probable cause(s) and possible source(s) of each pass through event. Include the names of the IU(s) that may have caused the pass through. Submit an attachment if necessary.

Attachment:

d. Does your POTW have, or is it required to develop, an approved pretreatment program?

☐ Yes ☐ No

If **yes**, answer all questions in Item 2, but skip Item 3.

If **no**, skip Item 2 and answer all questions in Item 3 for each significant industrial user and categorical industrial user.

2. POTWS WITH APPROVED PROGRAMS OR THOSE REQUIRED TO DEVELOP A PROGRAM (Instructions, Pages 84-85)

a. Have there been any substantial modifications to the POTW's approved pretreatment program that have not been submitted to the Approval Authority (TCEQ) for approval according to *40 CFR § 403.18*?

☐ Yes ☐ No

If **yes**, identify on a separate attachment all substantial modifications that have not been submitted to the TCEQ, including the purpose of the modification.

Attachment:

b. Have there been any nonsubstantial modifications to the POTW's approved pretreatment program that have not been submitted to the Approval Authority (TCEQ)?

☐ Yes ☐ No

If **yes**, identify on a separate attachment all nonsubstantial modifications that have not been submitted to the TCEQ, including the purpose of the modification.

Attachment:

c. Effluent Parameters above the minimum analytical level (MAL).

List all parameters measured above the MAL in the POTW's effluent monitoring during the last three years.

Effluent Parameters Measured Above the MAL

Pollutant	Concentration	MAL	Units	Date

d. Has any SIU, CIU, or other IU caused or contributed to any other problems (excluding interference or pass through) at your POTW in the past three years?

☐ Yes ☐ No

If **yes**, provide a description of each episode, including date(s), duration, description of problems, and probable pollutants. Include the name(s) of the SIU(s)/CIU(s)/other IU(s) that may have caused or contributed to any of the problems.

3. SIGNIFICANT INDUSTRIAL USER AND CATEGORICAL INDUSTRIAL USER INFORMATION (Instructions, Pages 85-86)

a. Company Name: SIC Code:

Telephone number: Fax number:

Contact name:

Physical Address: City:

State: Zip Code:

b. Describe the industrial processes or other activities that affect or contribute to the SIU(s) or CIU(s) discharge (i.e., process and non-process wastewater):

c. Provide a description of the principal products(s) or service(s) performed:

d. Flow rate information

Flow rate information

Effluent Type	Discharge (gallons per day)	Discharge Frequency (continuous, batch, or intermittent)
Process wastewater		
Non-process wastewater		

e. Pretreatment Standards

Is the SIU or CIU subject to technology-based local limits as defined in the application instructions?

☐ Yes ☐ No

Is the SIU subject to categorical pretreatment standards?

☐ Yes ☐ No

If the SIU is subject to categorical pretreatment standards, provide the category and subcategory or subcategories:

SIUs Subject To Categorical Pretreatment Standards

Category in 40 CFR	Subcategory in 40 CFR	Subcategory in 40 CFR	Subcategory in 40 CFR	Subcategory in 40 CFR

f. Has the SIU or CIU caused or contributed to any problem(s) (e.g., interferences, pass through, odors, corrosion, blockages) at your POTW in the past three years?

☐ Yes ☐ No

If **yes**, provide a description of each episode, including dates, duration, description of problems, and probable pollutants, and include the name(s) of the SIU(s)/CIU(s) that may have caused or contributed to the problem(s).

WORKSHEET 7.0
STORMWATER RUNOFF

This worksheet is required for all TPDES permit applications requesting individual permit coverage for discharges of stormwater runoff.

1. APPLICABILITY (Instructions, Page 87)

Do discharges from any of the proposed or existing outfalls consist of stormwater runoff only or stormwater runoff and any of the listed non-stormwater discharges on page 88 of the Instructions?

☐ Yes ☐ No

If **yes**, proceed as directed.

If **no**, stop here.

2. STORMWATER OUTFALL COVERAGE (Instructions, Page 88)

Indicate which type of authorization covers or is proposed to cover discharges from each stormwater outfall.

Authorization coverage

Outfall	Authorized Under MSGP	Authorized Under Individual Permit
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

If you have indicated that **all** existing or proposed stormwater outfalls are authorized under the MSGP, **stop here.**

If you have indicated that you are seeking authorization for any stormwater outfall under an individual permit, **proceed as directed**.

The following information **is required** for each outfall that discharges stormwater for which you are seeking individual authorization under this permit application.

3. SITE MAP (Instructions, Page 88)

Attach a site map or maps (drawn to scale) of the entire facility with the following information.

Attachment:

- the location of each stormwater outfall to be covered by the permit
- an outline of the drainage area that is within the facility's boundary and that contributes stormwater to each outfall to be covered by the permit
- connections or discharge points to municipal separate storm sewer systems
- locations of all structures (e.g. buildings, garages, storage tanks)
- structural control devices that are designed to reduce pollution in stormwater runoff
- process wastewater treatment units (including ponds)
- bag house and other air treatment units exposed to precipitation or runoff
- landfills; scrapyards; surface water bodies (including wetlands)
- vehicle and equipment maintenance areas
- physical features of the site that may influence stormwater runoff or contribute a dry weather flow
- locations where spills or leaks of reportable quality (as defined in *30 TAC § 327.4*) have occurred during the three years before this application was submitted to obtain coverage under an individual permit
- processing areas, storage areas, material loading/unloading areas, and other locations where significant materials are exposed to precipitation or runoff

☐ Indicate with an 'x' in the box that all the above information was provided on the facility site map(s).

4. FACILITY/SITE INFORMATION (Instructions, Pages 88-89)

a. Provide the area of impervious surface and the total area drained by each outfall that discharges stormwater for which you are seeking individual authorization under this permit application.

Impervious Surfaces

Outfall	Area of Impervious Surface (include units)	Total Area Drained (include units)

b. Provide the following local area rainfall information and the source of the information.

Wettest month:

Average rainfall for wettest month (total inches):

25-year, 24-hour rainfall (inches):

Source:

c. Provide an inventory, or list, of materials currently handled at the facility that may be exposed to precipitation.

d. Provide narrative descriptions of the industrial processes and activities involving the materials in the above-listed inventory that occur outdoors or in some manner that may result in exposure of the materials to precipitation or runoff.

e. Describe any best management practices and controls that you are using to prevent or effectively reduce pollution in stormwater discharges from the facility.

5. POLLUTANT ANALYSIS (Instructions, Pages 89-91)

a. Complete Table 17 as directed on page 90 of the Instructions.

Table 17 Pollutant Analysis for Outfall No.:

Pollutant	Grab Sample* Maximum (mg/L)	Composite Sample** Maximum (mg/L)	Grab Sample* Average (mg/L)	Composite Sample** Average (mg/L)	Number of Storm Events Sampled	MAL (mg/L)
pH (standard units)	(max)	—	(min)	—		—
Total suspended solids						—
Chemical oxygen demand						—
Total organic carbon						—
Oil and grease						—
Arsenic, total						0.0005
Barium, total						0.003
Cadmium, total						0.001
Chromium, total						0.003
Chromium, trivalent						—
Chromium, hexavalent						0.003
Copper, total						0.002
Lead, total						0.0005
Mercury, total						0.000005
Nickel, total						0.002
Selenium, total						0.005
Silver, total						0.0005
Zinc, total						0.005

* Taken during first 30 minutes of storm event
** Flow-weighted composite sample

b. Complete Table 18 as directed on pages 90-92 of the Instructions.

Table 18 Pollutant Analysis for Outfall No.:

Pollutant	Grab Sample* Maximum (mg/L)	Composite Sample** Maximum (mg/L)	Grab Sample* Average (mg/L)	Composite Sample** Average (mg/L)	Number of Storm Events Sampled

* Taken during first 30 minutes of storm event
** Flow-weighted composite sample

6. STORM EVENT DATA (Instructions, Page 91)

Provide the following data for the storm event(s) which resulted in the maximum values for the analytical data submitted:

Date of storm event:

Duration of storm event (minutes):

Total rainfall during storm event (inches):

Number of hours between beginning of storm measured and end of previous measurable rain event (hours):

Maximum flow rate during rain event (gallons/minute):

Total stormwater flow from rain event (gallons):

Provide a description of the method of flow measurement or estimate:

WORKSHEET 8.0
AQUACULTURE

This worksheet is required for all TPDES permit applications requesting individual permit coverage for discharges of aquaculture wastewater.

1. FACILITY/SITE INFORMATION (Instructions, Pages 92-93)

a. Describe the production ponds, raceways, and fabricated tanks at the facility:

Production Pond Descriptions:

Number of Ponds	Dimensions (include units)	Area of Each Pond (include units)	Number of Ponds × Area of Ponds (include units)

Total surface area of all ponds:

Raceway Descriptions:

Number of Raceways	Dimensions (include units)

Fabricated Tank Descriptions:

Number of Tanks	Dimensions (include units)

b. Do you have a TPWD-approved emergency plan?

☐ Yes ☐ No

c. Do you have an aquatic plant transplant authorization?

☐ Yes ☐ No

If **yes**, please provide a copy of the authorization letter.

Attachment:

d. How many aquaculture facilities are located within a 25-mile radius of this facility?

2. SPECIES IDENTIFICATION (Instructions, Page 93)

Identify each species being raised, the source, origin, and the disease status of the stock. If applicable, identify and attach copies of current relevant authorizations or permits that authorize the species.

Stock Species Information

Species	Source of Stock	Origin of Stock	Disease Status	Authorizations

3. STOCK MANAGEMENT PLAN (Instructions, Pages 93-94)

Provide a detailed stock management plan including all information required on pages 94-95 of the Instructions. Provide an attachment if necessary (and include the attachment number).

Attachment:

4. WATER TREATMENT AND DISCHARGE DESCRIPTION (Instructions, Page 94)

Provide a detailed description of the discharge practices and water treatment process including all information required on page 95 of the Instructions. Provide an attachment if necessary (and include the attachment number).

Attachment:

5. SOLID WASTE MANAGEMENT (Instructions, Page 94)

Describe solid waste-disposal practices including all information required on page 95 of the Instructions. Provide an attachment if necessary (and include the attachment number).

Attachment:

6. SITE ASSESSMENT REPORT AND SENSITIVE HABITAT REQUIREMENTS (Instructions, Pages 95-96)

Information in this section must be provided only by new and expanding commercial shrimp facilities located within the coastal zone.

Attach a detailed site assessment report including the following.

Attachment:

- Facility location
- Flushing rate
- Reefs
- Endangered or threatened species or species of concern
- Spawning
- Nesting
- Bird roosts
- Recreational use
- Nursery habitat
- Discharge characterization

WORKSHEET 9.0
CLASS V INJECTION WELL INVENTORY/AUTHORIZATION FORM

SUBMIT TO: TCEQ UIC Permits Team Radioactive Materials Division MC 233 PO Box 13087 Austin, Texas 78711-3087 512/239-6466	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY CLASS V INJECTION WELL INVENTORY/ AUTHORIZATION FORM	For TCEQ Use Only Reg. No. Date Received: Date Authorized:

Reg. No. 5

SECTION I GENERAL INFORMATION

Provide the information in Items 1 through 8 (Instructions, Page 98)

General Information
1. TCEQ Program Area (PST, VCP, IHW, etc.), Contact Name and Phone Number
2. Agent/Consultant, Contact Name, Address (Street, City, State, and Zip Code), and Phone Number
3. ☐ Owner ☐ Operator Owner/Operator, Contact Name, Address (Street, City, State, and Zip Code), and Phone Number
4. Facility Name, Address (Street, City, County, State, and Zip Code) or location description (if no address is available) and Facility Contact Person and Phone Number
5. Latitude and Longitude (degrees-minutes-seconds) and method of determination (GPS, TOPO, etc.) (Attach topographic quadrangle map as Attachment A)
6. Type of Well Construction (Vertical Injection, Subsurface Fluid Distribution System, Infiltration Gallery, Temporary Injection Points, etc.) and Number of Injection Wells
7. Detailed Description regarding purpose of Injection System. Attach a Site Map as Attachment B (Attach the Approved Remediation Plan [if appropriate])
8. Water Well Driller/Installer, Address (Street, City, State, and Zip Code), Phone Number, and License Number

SECTION II PROPOSED DOWN HOLE DESIGN

Attach a diagram signed and sealed by a licensed engineer as Attachment C

Name of String	Size	Setting Depth	Sacks Cement/Grout - Slurry Volume - Top of Cement	Hole Size	Weight PVC/Steel (lbs/ft)
9. Casing					
10. Tubing					
11. Screen					

SECTION III PROPOSED TRENCH SYSTEM, SUBSURFACE FLUID DISTRIBUTION SYSTEM, OR INFILTRATION GALLERY

Attach a diagram signed and sealed by a licensed engineer as Attachment D

Proposed System Information	
12. System(s) Dimensions	13. System(s) Construction

SECTION IV SITE HYDROGEOLOGICAL AND INJECTION ZONE DATA

Provide the information in Items 14 through 31

Site Hydrogeological and Injection Zone Data
14. Name of Contaminated Aquifer
15. Receiving Formation Name of Injection Zone
16. Well/Trench Total Depth
17. Surface Elevation
18. Depth to Groundwater
19. Injection Zone Depth
20. Injection Zone vertically isolated geologically? ☐ Yes ☐ No Impervious Strata between Injection Zone and nearest Underground Source of Drinking Water Name: Thickness:

Site Hydrogeological and Injection Zone Data
21. Provide a list of contaminants and the levels (ppm) in contaminated aquifer Attach as Attachment E
22. Horizontal and Vertical extent of contamination and injection plume Attach as Attachment F
23. Formation (Injection Zone) Water Chemistry (Background levels) TDS, etc Attach as Attachment G
24. Injection Fluid Chemistry in PPM at point of injection Attach as Attachment H
25. Lowest Known Depth of Groundwater with < 10,000 PPM TDS
26. Maximum injection Rate/Volume/Pressure
27. Water wells within 1/4 mile radius (attach map as Attachment I)
28. Injection wells within 1/4 mile radius (attach map as Attachment I)
29. Monitor wells within 1/4 mile radius (attach drillers logs and map as Attachment I)
30. Sampling frequency
31. Known hazardous components in injection fluid

SECTION V SITE HISTORY

Provide the information in Items 32 through 35

Site History
32. Type of Facility
33. Contamination Dates
34. Original Contamination (VOCs, TPH, BTEX, etc.) and Concentrations Attach as Attachment J
35. Previous Remediation Attach results of any previous remediation as Attachment K

NOTE: Authorization Form should be completed in detail and authorization given by the TCEQ before construction, operation, and/or conversion can begin. Attach additional pages as necessary.

CLASS V INJECTION WELL DESIGNATIONS

5A07 Heat Pump/AC return (IW used for groundwater to heat or cool buildings)

5A19 Industrial Cooling Water Return Flow (IW used to cool industrial process equipment)

5B22 Salt Water Intrusion Barrier (IW used to inject fluids to prevent the intrusion of salt water into an aquifer)

5D02 Stormwater Drainage (IW designed for the disposal of rain water)

5D04 Industrial Stormwater Drainage Wells (IW designed for the disposal of rain water associated with industrial facilities)

5F01 Agricultural Drainage (IW that receive agricultural runoff)

5R21 Aquifer Recharge (IW used to inject fluids to recharge an aquifer)

5S23 Subsidence Control Wells (IW used to control land subsidence caused by groundwater withdrawal)

5W09 Untreated Sewage

5W10 Large Capacity Cesspools (Cesspools that are designed for 5,000 gpd or greater)

5W11 Large Capacity Septic systems (Septic systems designed for 5,000 gpd or greater)

5W12 WTTP disposal

5W20 Industrial Process Waste-disposal Wells

5W31 Septic System (Well Disposal method)

5W32 Septic System Drainfield Disposal

5X13 Mine Backfill (IW used to control subsidence, dispose of mining byproducts, or fill sections of a mine)

5X25 Experimental Wells (Pilot Test) (IW used to test new technologies or tracer dye studies)

5X26 Aquifer Remediation (IW used to clean up, treat, or prevent contamination of a USDW)

5X27 Other Wells

5X28 Motor Vehicle Waste-disposal Wells (IW used to dispose of waste from a motor vehicle site - These are currently banned)

5X29 Abandoned Drinking Water Wells (waste disposal)

WORKSHEET 10.0
QUARRIES IN THE JOHN GRAVES SCENIC RIVERWAY

This worksheet **is required** for all TPDES permit and TLAP applications for individual permits for a municipal solid waste facilities or mining facilities located within a Water Quality Protection Area in the John Graves Scenic Riverway.

Review *30 TAC §§ 311.71-311.82* thoroughly prior to completing any portion of this worksheet.

1. EXCLUSIONS (Instructions, Pages 99-100)

Is this a municipal solid waste facility?

☐ Yes ☐ No

Has this quarry been in operation since January 1, 1994 without cessation of operation for more than 30 consecutive days and under the same ownership?

☐ Yes ☐ No

Is this a coal mine?

☐ Yes ☐ No

Is this a facility mining clay and shale for use in manufacturing structural clay products?

☐ Yes ☐ No

If **yes** to any of the above questions, **stop here**. You are required to maintain acceptable documentation, as outlined in *30 TAC § 311.72(c)*, at the facility to demonstrate the exclusion(s).

2. LOCATION OF THE QUARRY (Instructions, Page 100)

Indicate the distance between the quarry and the nearest navigable water body.

☐ < 200 feet

☐ 200 feet – 1,500 feet

☐ 1,500 feet – 1 mile

☐ > 1 mile

Note that the construction or operation of any new quarry or expansion of any existing quarry **is prohibited** within 200 feet of any water body located within a water quality protection area in the John Graves Scenic Riverway.

3. ADDITIONAL APPLICATION REQUIREMENTS (Instructions, Pages 100-101)

Use the table below to determine which additional application requirements apply to your facility, based on distance between the quarry and the nearest waterway.

Additional Application Requirements

Application Requirement	200 feet – 1,500 feet	1,500 feet – 1 mile	> 1 mile
Restoration Plan	Yes	Yes	Yes
Financial Assurance for Restoration	Yes	Yes	Yes
Technical Demonstration	Yes	Not required	Not required
Reclamation Plan	Yes	Not required	Not required
Financial Assurance for Reclamation	Yes	Not required	Not required

a. Restoration Plan

The Restoration Plan must address each of the following items as required by *30 TAC § 311.76*:

- Certified by a licensed Texas professional engineer or a licensed Texas professional geoscientist, within the appropriate area or discipline
- Identifies receiving waters at risk of an unauthorized discharge from the quarry and includes a proposed plan of action for restoration
- Describes the process(es) used in documenting existing physical, chemical, or biological background conditions of each of the receiving waters
- Provides a schedule for updating background conditions, as appropriate
- Identifies the goals and objectives of potential restoration actions
- Provides a reasonable range of restoration alternatives and identifies the preferred restoration alternative
- Describes the process for monitoring the effectiveness of the preferred restoration action. This includes identifying performance criteria used to determine the success of the restoration or need for interim site stabilization.
- Identifies a process for public involvement in the selection of the restoration alternative
- Provides a detailed cost estimate of the maximum probable costs required to complete a restoration action based on the costs to a third party conducting the action without a financial interest or ownership in the quarry

b. Financial Assurance for Restoration

Indicate the amount of financial assurance provided and the financial assurance mechanism used.

Amount of Financial Assurance ($):

Mechanism:

c. Technical Demonstration

The Technical Demonstration must address/include each of the following items as required by *30 TAC § 311.77*:

- Certification by a licensed Texas professional engineer or a licensed Texas professional geoscientist, within the appropriate area or discipline
- A time schedule for the quarry from initiation to termination of operations, including reclamation
- A detailed description of the type of quarrying to be conducted and the processes/methods employed
- A geological description of the quarry area, including the material deposit: type, geographical extent, depth, and volume; and a description of the general area geology
- A detailed description of any other operations on-site, include raw-material processing and secondary products processing
- A topographic map representing the quarry operation and all of the following within the boundaries of the quarry
  - water bodies
  - existing and proposed roads including quarry access roads
  - existing and proposed railroads
  - the 100 year floodplain boundaries
  - structures
  - the location of all know wells including water wells, oil wells, and unplugged and abandoned wells
  - active, post, and reclaimed quarry areas
  - buffer area
  - raw material, intermediate material, final product, waste product, byproduct, or ancillary material storage and processing areas
  - chemical and fuel storage areas
  - vehicle/equipment maintenance, cleaning, and fueling areas
  - vehicle/equipment loading and unloading areas
  - baghouses and other air treatment units exposed to precipitation
  - waste-disposal areas
- Surface Water Drainage and Water Accumulation Plan (SWDAP) that
  - describes the use and monitoring of structural controls and best management practices designed to control erosion, siltation, and runoff
  - provides a topographic map, at a scale appropriate to represent the quarry operation and all of the following within the boundaries of the quarry
    - the location of each process wastewater and stormwater outfall
    - an outline of the drainage area that contributes stormwater to each outfall
    - treatment, detention, and water storage tanks and ponds
    - structural controls for managing stormwater and process wastewater
    - physical features of the site that would influence stormwater runoff or contribute a dry weather flow

- Best Available Technology Evaluation (BATE) that
  - assesses the use of structural controls and best management practices
  - evaluates performance criteria outlined at *30 TAC § 311.79* and *§311.80*
  - includes structural control design and construction that is certified by a licensed Texas professional engineer. Design and construction plan/specification must be maintained on site.
- A procedure and schedule for reviewing the Technical Demonstration for consistency with quarry operations and site conditions and effectiveness in controlling erosion, siltation, and runoff.

d. Reclamation Plan

The Reclamation Plan must address/include each of the following items as required by *30 TAC § 311.78*:

- Certification by a licensed Texas professional engineer or a licensed Texas professional geoscientist, within the appropriate area or discipline
- A description of the proposed use for the disturbed area following reclamation
- A site-specific standard for reclamation appropriate to the end use that addresses the following items:
  - removal or final stabilization of all raw material, intermediate material, final product, waste product, byproduct, and ancillary material
  - removal of waste or closure of all waste-disposal areas
  - removal of structures, where appropriate
  - removal and reclamation of all temporary roads and railroads
  - backfilling, regarding, and recontouring
  - slope stability for remaining highwalls and detention ponds
  - revegetation of the reclaimed area giving consideration to species diversity and the use of native species
  - establishment of wildlife habitat
  - establishment of drainage patterns
  - establishments of permanent control structures, where necessary, to address erosion, siltation, and runoff from post quarrying and reclaimed areas
  - removal of all equipment
- A description of how reclamation will be conducted and a timetable for the completion of reclamation activities

e. Financial Assurance for Reclamation

Indicate the amount of financial assurance provided and the financial assurance mechanism used.

Amount of Financial Assurance ($):

Mechanism:

WORKSHEET 11.0
COOLING WATER INTAKE INFORMATION

This worksheet **is required** for all new, renewal, and amendment TPDES permit applications that meet the conditions outlined in Technical Report 1.0, Item 12.

1. COOLING WATER SYSTEM DATA (Instructions, Pages 102-103)

a. Complete the following table with information regarding the cooling water system.

Cooling Water System Data

Total DIF	
Total AIF	
Intake Flow Uses (%)	
Contact cooling	
Non-contact cooling	
Process uses	
Other	

b. Provide the following information as an attachment.

Attachment:

1. A narrative description of the design and annual operation of the facility's cooling water system and its relationship to the CWIS(s).
2. A scaled map depicting the location of each CWIS, impoundment, intake pipe, and canals, pipes, or waterways used to convey cooling water to, or within, the cooling water system. Provide the latitude and longitude for each CWIS and any intake pipe(s) on the map. Indicate the position of the intake pipe within the water column.
3. A description of water reuse activities, if applicable.
4. Design and engineering calculations prepared by a qualified professional and data to support the information provided in above item a.
5. Previous year (a minimum of 12 months) of AIF data.
6. A narrative description of existing or proposed impingement and entrainment technologies or operation measures and a summary of their performance, including, but not limited to, reductions in impingement mortality and entrainment due to intake location and reductions in total water withdrawals and usage.

2. COOLING WATER INTAKE STRUCTURE(S) DATA (Instructions, Page 103)

a. Complete the following table with information regarding each cooling water intake structure (this includes primary and make-up CWIS(s)).

Cooling Water Intake Structure(s) Data

CWIS ID				
DIF				
AIF				
Intake Flow Uses (%)				
Contact cooling				
Non-contact cooling				
Process uses				
Other				
Latitude				
Longitude				

b. Provide the following information as an attachment

Attachment:

1. A narrative description of the configuration of each CWIS, annual and daily operation, including any seasonal changes, and where it is located in the water body and in the water column.
2. Engineering calculations for each CWIS.

3. SOURCE WATER PHYSICAL DATA (Instructions, Page 104)

a. Complete the following table with information regarding the CWIS(s) source waterbody (this includes primary and make-up CWIS(s)).

Source Waterbody Data

CWIS ID				
Source waterbody				
Mean annual flow				
Source				

b. Provide the following information as an attachment.

Attachment:

1. A narrative description of the source water for each CWIS, including areal dimensions, depths, salinity and temperature regimes, and other documentation that supports your determination of the water body type where each cooling water intake structure is located.
2. A narrative description of the source waterbody's hydrological and geomorphological features.
3. Scaled drawings showing the physical configuration of all source water bodies used by the facility, including the source waterbody's hydrological and geomorphological features. Note: The source waterbody's hydrological and geomorphological features may be included on the map submitted for item 1.b.ii of this worksheet.
4. A description of the methods used to conduct any physical studies to determine your intake's area of influence within the waterbody and the results of such studies.

4. OPERATIONAL STATUS (Instructions, Pages 104-105)

a. Is this application is for a power production or steam generation facility?

☐ Yes ☐ No

If **yes**, provide the following information as an attachment; otherwise, proceed to item b.

Attachment:

1. Describe the operating status of each individual unit, including age of each unit, capacity utilization rate (or equivalent), for the previous five years (a minimum of 60 months), and any seasonal changes in operation.
2. Describe any extended or unusual outages that significantly affect current data for flow, impingement, entrainment, or other factors.
3. Identify any operating unit with a capacity utilization rate of less than 8 percent averaged over a contiguous period of two years (a minimum of 24 months).
4. Describe any major upgrades completed within the last 15 years, including but not limited to boiler replacement, condenser replacement, turbine replacement, or changes to fuel type.

b. Process Units

1. Is this application for a facility which has process units that use cooling water other than for power production or steam generation?

☐ Yes ☐ No

If **yes**, continue; otherwise, proceed to item c.

2. Does the facility use or intend to use reductions in flow or changes in operations to meet the requirements of *40 CFR § 125.94(c)*?

☐ Yes ☐ No

If **yes**, provide descriptions of the following information as an attachment, otherwise proceed to item c.

Attachment:

- Individual production processes and product lines
- The operating status, including age of each line and seasonal operation
- Any extended or unusual outages that significantly affect current data for flow, impingement, entrainment, or other factors
- Any major upgrades completed within the last 15 years and plans or schedules for decommissioning or replacement of process units or production processes and product lines.

c. Is this an application for a nuclear power production facility?

☐ Yes ☐ No

If **yes**, include a description of completed, approved, or scheduled upgrades and Nuclear Regulatory Commission relicensing status of each unit at the facility as an attachment; otherwise, proceed to item d.

Attachment:

d. Is this an application for a manufacturing facility?

☐ Yes ☐ No

If **yes**, include descriptions of current and future production schedules and any plans or schedules for any new units planned within the next five years (a minimum of 60 months) as an attachment; otherwise proceed to Worksheet 11.1.

Attachment:

WORKSHEET 11.1
IMPINGEMENT MORTALITY

This worksheet **is required** for all new, renewal, and amendment TPDES permit applications that meet the conditions outlined in Technical Report 1.0, Item 12. Complete one copy of this worksheet for each individual CWIS the facility uses or proposes to use.

CWIS ID:

1. IMPINGEMENT COMPLIANCE TECHNOLOGY OPTION SELECTION (Instructions, Page 106)

Indicate the method of compliance with the Impingement Mortality Standard selected by the facility with an 'x' in the appropriate box.

- ☐ Closed-cycle recirculating system(CCRS) [*40 CFR § 125.94(c)(1)*]
- ☐ 0.5 ft/s Through-Screen Design Velocity [*40 CFR § 125.94(c)(2)*] – Proceed to Worksheet 11.2
- ☐ 0.5 ft/s Through Screen Actual Velocity [*40 CFR § 125.94(c)(3)*]
- ☐ Existing offshore velocity cap [*40 CFR § 125.94(c)(4)*] – Proceed to Worksheet 11.2
- ☐ Modified traveling screens [*40 CFR § 125.94(c)(5)*]
- ☐ System of technologies [*40 CFR § 125.94(c)(6)*]
- ☐ Impingement mortality performance standard [*40 CFR § 125.94(c)(7)*]
- ☐ De minimis rate of impingement [*40 CFR § 125.94(c)(11)*]
- ☐ Low capacity utilization power-generation facilities [*40 CFR § 125.94(c)(12)*]

If you selected 0.5 ft/s Through-Screen Design Velocity [*40 CFR § 125.94(c)(2)*] or existing offshore velocity cap [*40 CFR § 125.94(c)(4)*], proceed to Worksheet 11.2. Otherwise, continue.

2. IMPINGEMENT COMPLIANCE TECHNOLOGY INFORMATION (Instructions, Pages 106-108)

Complete the following sections based on the selection made for item 1 above.

a. CCRS [*40 CFR § 125.94(c)(1)*]

☐ Indicate with an 'x' in the box if the CWS meets the definition of CCRS located at *40 CFR § 125.91(c)* and provide a response to the following questions.

1. Does the facility use or propose to use a CWIS to replenish water losses to the CWS?

☐ Yes ☐ No

If **no**, proceed to **item ii**. If **yes**, provide the following information as an attachment and continue.

Attachment:

i. CWIS ID

ii. 12 months of intake flow data for any CWIS used for make-up intake flows to replenish cooling water losses, excluding intakes for losses due to blowdown, drift, or evaporation.

iii. A narrative description of any physical or operational measures taken to minimize make-up withdraws.

Note: You do not need to complete a separate Worksheet 11.1 for a make-up CWIS.

2. Does the facility use or propose to use cooling towers?

☐ Yes ☐ No

If **no**, proceed to Worksheet 11.2. If **yes**, provide the following information and proceed to Worksheet 11.2.

i. Average number of COCs prior to blowdown:

Average COCs prior to blowdown

Cooling Tower ID				
COCs				

Provide COC monitoring data for each cooling tower from the previous year (a minimum of 12 months) as an attachment.

Attachment:

ii. Maximum number of COCs each cooling tower can accomplish based on design of the system.

Calculated COCs prior to blowdown

Cooling Tower ID				
COCs				

iii. Describe conditions that may limit the number of COCs prior to blowdown, if any, including but not limited to permit conditions.

b. 0.5 ft/s Through Screen Actual Velocity [*40 CFR § 125.94(c)(3)*]

Provide daily intake flow measurement monitoring data from the previous year (a minimum of 12 months) as an attachment and proceed to Worksheet 11.2.

Attachment:

c. Modified traveling screens [*40 CFR § 125.94(c)(5)*]

Provide the following information as an attachment and proceed to Worksheet 11.2.

Attachment:

1. A description of the modified traveling screens and associated equipment.
2. A site-specific impingement technology performance optimization study that includes a narrative description of the biological data collection methods
3. Biological sampling data from the previous two years (a minimum of 24 months).

d. System of technologies [*40 CFR § 125.94(c)(6)*] or impingement mortality performance standard [*40 CFR § 125.94(c)(7)*]

Provide the following information as an attachment and proceed to Worksheet 11.2.

Attachment:

i. A description of the system of technologies used or proposed for use by the facility to achieve compliance with the impingement mortality standard.

ii. A site-specific impingement technology performance optimization study that includes a narrative description of the biological data collection methods.

iii. Biological sampling data from the previous two years (a minimum of 24 months).

e. De minimis rate of impingement [*40 CFR § 125.94(c)(11)*]

Provide the following information and proceed to Worksheet 11.2.

1. Include monitoring data from the previous year (a minimum of 12 months) of intake flow measured at a frequency of 1/day on days of operation as an attachment.

   Attachment:

2. If the rate of impingement caused by the CWIS is extremely low (at an organism or age-one equivalent count), include supplemental information to Worksheet 11.0, item 1.b.vi. to support as an attachment.

   Attachment:

f. Low capacity utilization power-generation facilities [*40 CFR § 125.94(c)(12)*]

Provide monthly utilization data from the previous 2 years (a minimum of 24 months) for each operating unit as an attachment and proceed to Worksheet 11.2.

Attachment:

WORKSHEET 11.2
SOURCE WATER BIOLOGICAL DATA

This worksheet **is required** for all new, renewal, and amendment TPDES permit applications that meet the conditions outlined in Technical Report 1.0, Item 12. Complete one copy of this worksheet for each source waterbody of a CWIS for which a facility has selected an Impingement Mortality Technology Option described at *40 CFR §§ 125.94(c)(1)-(7)*.

Name of source waterbody:

1. SPECIES MANAGEMENT (Instructions, Page 109)

a. The facility has obtained an incidental take permit for its cooling water intake structure(s) from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service.

☐ Yes ☐ No

If **yes**, any information submitted in order to obtain that permit may be used to supplement the permit application information requirements of paragraph *40 CFR § 125.95(f)*. If included, provide the attachment number.

Attachment:

b. Is the facility requesting a waiver from application requirements at *40 CFR § 122.21(r)(4)* in accordance with *40 CFR § 125.95* for any CWIS(s) that withdraw from a man-made reservoir that is stocked and managed by a state or federal natural resources agency or the equivalent?

☐ Yes ☐ No

If yes, include a copy of the most recent managed fisheries report to TPWD, or equivalent, as an attachment.

Attachment:

c. There are no federally listed threatened or endangered species or critical habitat designations within the source water body.

☐ True ☐ False

2. SOURCE WATER BIOLOGICAL DATA (Instructions, Pages 109-110)

New Facilities (Phase I, Track I and II)

- Provide responses to all items in this section and stop.

Existing Facilities (Phase II)

- If the answer to **1.b.** above was **no**, provide responses to all items in this section and proceed to Worksheet 11.3.
- If the answer to **1.b.** was **yes** and **1.c.** was **true,** do not complete any items in this section and proceed to Worksheet 11.3.
- If the answer to **1.b.** was **yes** and **1.c.** was **false**, provide a response for any item in this section that is not contained within the most recent TPWD, or equivalent, report as an attachment to the application and enter the attachment number in the space provided. Proceed to Worksheet 11.3.

Attachment:

a. A list of the data requested at *40 CFR § 122.21(r)(4)(ii)* through *(vi)* that are not available and efforts made to identify sources of the data.

b. Provide a list of species (or relevant taxa) in the vicinity of the CWIS and identify the following information regarding each species listed.
   1. all life stages and their relative abundance,
   2. identification of all species and life stages that would be most susceptible to impingement and entrainment,
   3. forage base,
   4. significance to commercial fisheries,
   5. significance to recreational fisheries,
   6. primary period of reproduction,
   7. larval recruitment, and
   8. period of peak abundance for relevant taxa.

c. Data representative of the seasonal and daily activities (e.g., feeding and water column migration) of biological organisms in the vicinity of the cooling water intake structure.

d. Identify all threatened, endangered, and other protected species that might be susceptible to impingement and entrainment at your cooling water intake structures.

e. Documentation of any public participation or consultation with federal or state agencies undertaken and provide an attachment number.

The following is required for existing facilities only. Include the following information with the above listed attachment.

f. Identify any protective measures and stabilization activities that have been implemented, and provide a description of how these measures and activities affected the baseline water condition in the vicinity of the intake.

g. A list of fragile species, as defined at *40 CFR § 125.92(m)*, at the facility. The applicant need only identify those species not already identified as fragile at *40 CFR § 125.92(m)*.

Note: New units at an existing facility are not required to resubmit this information if the cooling water withdrawals for the operation of the new unit are from an existing intake.

WORKSHEET 11.3
COMPLIANCE WITH ENTRAINMENT MORTALITY STANDARD

This worksheet **is required** for all new, renewal, and amendment TPDES permit applications that meet the conditions outlined in Technical Report 1.0, Item 12. Complete one copy of this worksheet for each individual CWIS the facility uses or proposes to use.

CWIS ID:

1. APPLICABILITY (Instructions, Page 111)

Is the AIF of the CWIS identified above greater than, or equal to, 125 MGD?

☐ Yes ☐ No

- If **no** or the facility has selected **CCRS** [*40 CFR § 125.94(c)(1)*] for the impingement mortality compliance method, complete item 2 and stop here.
- If **yes** and the facility is **seeking a waiver** from application requirements in accordance with *40 CFR § 125.95* for any CWIS(s) that withdraw from a man-made reservoir that is stocked and managed by a state or federal natural resources agency or the equivalent, complete item 2 and stop.
- If **yes** and the facility is **not seeking a waiver** from application requirements in accordance with *40 CFR § 125.95*, complete item 2 and provide any required and completed studies listed in item 3. For any required studies in item 3 that are not complete, provide a detailed explanation for the delay and an anticipated schedule for completion and submittal.

2. EXISTING ENTRAINMENT PERFORMANCE STUDIES (Instructions, Page 111)

Previously conducted studies or studies obtained from other facilities addressing technology efficacy, through-facility entrainment survival, and other entrainment studies with the application.

Attachment:

3. FACILITY ENTRAINMENT PERFORMANCE STUDIES (Instructions, Pages 111-112)

a. Provide an entrainment characterization study, as described at *40 CFR § 122.21(r)(9)*, as an attachment.

Attachment:

b. Provide a comprehensive feasibility study, as described as *40 CFR § 122.21(r)(10)*, as an attachment.

Attachment:

c. Provide a benefits valuation study, as described as *40 CFR § 122.21(r)(11)*, as an attachment.

Attachment:

d. Provide a non-water quality environmental and other impacts study, as described as *40 CFR § 122.21(r)(12)*, as an attachment.

Attachment:

e. Provide a peer review analysis, as described as *40 CFR § 122.21(r)(13)*, as an attachment.

Attachment:

ATTACHMENT

T1

ATTACHMENT

T2

ATTACHMENT

T3

ATTACHMENT

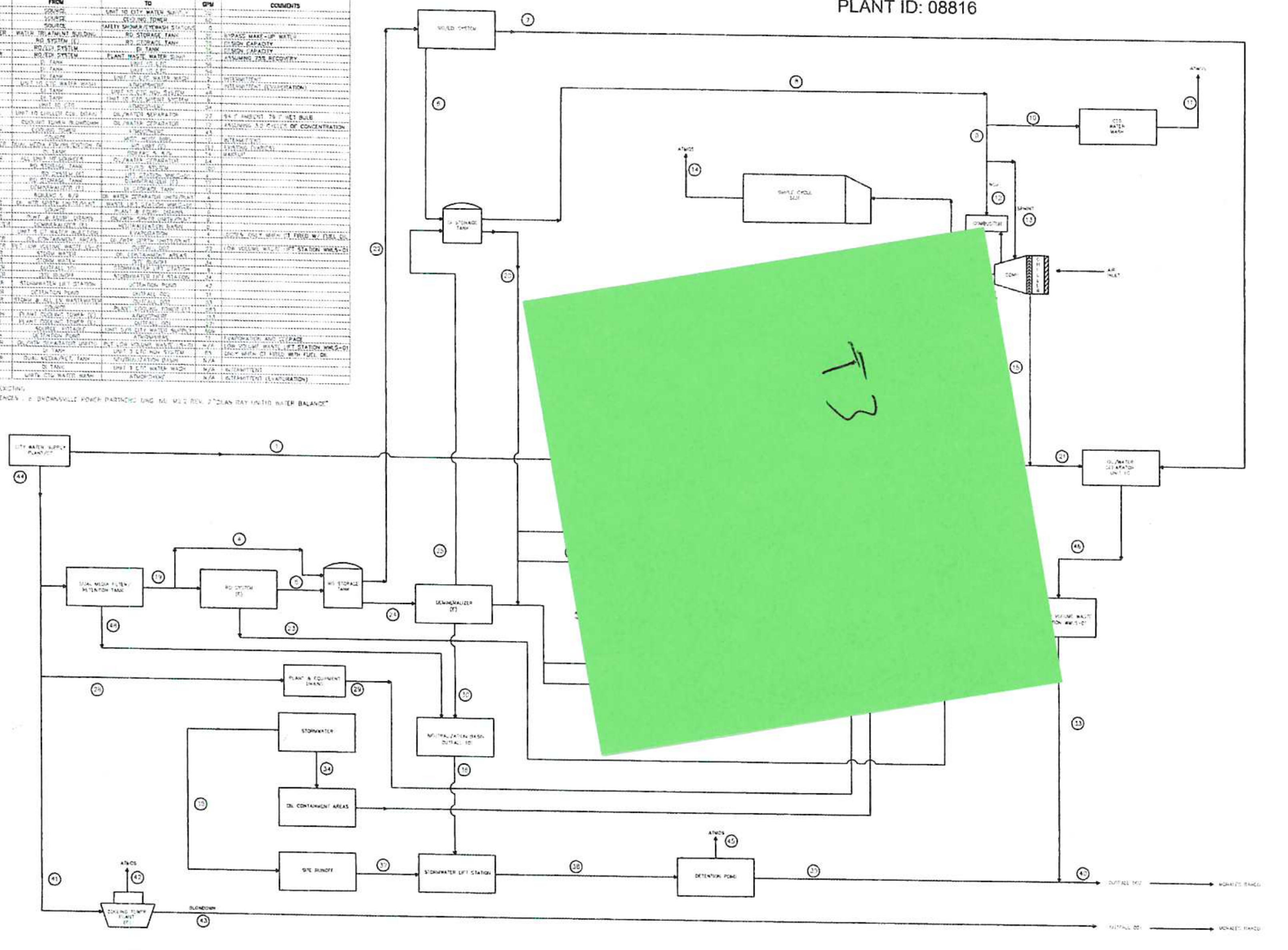
T4

PLANT NAME: SILAS RAY POWER PLANT
PLANT ID: 08816

PLANT WATER BALANCE

POINT	LIQUID	FROM	TO	FLOW GPM	COMMENTS
1	CITY WATER	SOURCE	UNIT 10 CITY WATER SUPPLY	[illegible]	
2	CITY WATER	SOURCE	COOLING TOWER	[illegible]	
3	CITY WATER	SOURCE	SAFETY SHOWER/EYEWASH STATIONS	0	
4	SERVICE WATER	WATER TREATMENT BUILDING	RO STORAGE TANK	[illegible]	BYPASS MAKE-UP WATER
5	RO WATER	RO SYSTEM (E)	RO STORAGE TANK	[illegible]	DESIGN CAPACITY
6	DI WATER	RO/EDI SYSTEM	DI TANK	[illegible]	DESIGN CAPACITY
7	WASTE WATER	RO/EDI SYSTEM	PLANT WASTE WATER SUMP	[illegible]	ASSUMING 75% RECOVERY
8	DI WATER	DI TANK	UNIT 10 CTG	56	
9	DI WATER	DI TANK	UNIT 10 CTG	56	
10	DI WATER	DI TANK	UNIT 10 CTG WATER WASH	2	INTERMITTENT
11	DI WATER	UNIT 10 CTG WATER WASH	ATMOSPHERE	2	INTERMITTENT (EVAPORATION)
12	DI WATER	DI TANK	UNIT 10 CTG NOx SYSTEM	48	
13	DI WATER	DI TANK	UNIT 10 CTG SPRINT SYSTEM	6	
14	DI WATER	UNIT 10 CTG	ATMOSPHERE	54	
15	CONDENSATE	UNIT 10 CHILLER COIL DRAIN	OIL/WATER SEPARATOR	22	94 F AMBIENT, 78 F WET BULB
16	BLOWDOWN	COOLING TOWER BLOWDOWN	OIL/WATER SEPARATOR	12	ASSUMING 3.5 CYCLES OF CONCENTRATION
17	EVAPORATION	COOLING TOWER	ATMOSPHERE	43	
18	CITY WATER	SOURCE	MISC. HOSE BIBS	10	INTERMITTENT
19	SERVICE WATER	DUAL MEDIA FLTR/RETENTION TK	RO UNIT (E)	[illegible]	EXISTING (VARIES)
20	DI WATER	DI TANK	[illegible]	[illegible]	MAKEUP
21	WASTE WATER	ALL UNIT 10 SOURCES	OIL/WATER SEPARATOR	[illegible]	
22	RO WATER	RO STORAGE TANK	RO/EDI SYSTEM	[illegible]	
23	RO REJECT	RO SYSTEM (E)	LIFT STATION WWLS-01	[illegible]	
24	RO WATER	RO STORAGE TANK	DEMINERALIZER (E)	[illegible]	
25	DI WATER	DEMINERALIZER (E)	DI STORAGE TANK	[illegible]	
26	DI WATER	[illegible]	OIL WATER SEPARATOR UNITS/PLANT	4	
27	WASTE WATER	OIL WTR SPRTR UNITS/PLNT	WASTE LIFT STATION WWLS-01	[illegible]	
28	CITY WATER	SOURCE	PLANT & EQUIP. DRAINS	[illegible]	
29	CITY WATER	PLNT & EQUIP. DRAINS	OIL/WTR SPRTR UNITS/PLNT	[illegible]	
30	DI REJECT WATER	DEMINERALIZER (E)	NEUTRALIZATION BASIN	[illegible]	
31	DI WATER	UNIT 9 CT WATER INJECTION	EVAPORATION	4	OCCURS ONLY WHEN CT FIRED W/ FUEL OIL
32	WASTE WATER	OIL CONTAINMENT AREAS	OIL/WTR SPRTR UNITS/PLNT	4	
33	WASTE WATER	PLT LOW VOLUME WASTE LS-01	OUTFALL 002	22	LOW VOLUME WASTE LIFT STATION WWLS-01
34	RAIN WATER	STORM WATER	OIL CONTAINMENT AREAS	4	
35	RAIN WATER	STORM WATER	SITE RUNOFF	34	
36	WASTE WATER	OUTFALL 101	STORMWATER LIFT STATION	[illegible]	
37	WASTE WATER	SITE RUNOFF	STORMWATER LIFT STATION	34	
38	WASTE WATER	STORMWATER LIFT STATION	DETENTION POND	42	
39	WASTE WATER	DETENTION POND	OUTFALL 002	31	
40	WASTE WATER	STORM & ALL LV WASTEWATER	OUTFALL 002	53	
41	CITY WATER	SOURCE	PLANT COOLING TOWER (E)	[illegible]	
42	EVAPORATION	PLANT COOLING TOWER (E)	ATMOSPHERE	[illegible]	
43	BLOWDOWN	PLANT COOLING TOWER (E)	OUTFALL 001	[illegible]	
44	CITY WATER	SOURCE, POTABLE	UNIT 5/9 CITY WATER SUPPLY	[illegible]	
45	EVAPORATION	DETENTION POND	ATMOSPHERE	11	EVAPORATION AND SEEPAGE
46	WASTE WATER	OIL/WTR SEPARATOR UNIT 10	PLT LOW VOLUME WASTE LS-01	N/A	LOW VOLUME WASTE LIFT STATION WWLS-01
47	DI WATER	DI TANK	UNIT 9 CTG NOx SYSTEM	[illegible]	ONLY WHEN CT FIRED WITH FUEL OIL
48	WASTE WATER	DUAL MEDIA/RET. TANK	NEUTRALIZATION BASIN	N/A	
49	DI WATER	DI TANK	UNIT 9 CTG WATER WASH	N/A	INTERMITTENT
50	DI WATER	UNIT 9 CTG WATER WASH	ATMOSPHERE	N/A	INTERMITTENT (EVAPORATION)

NOTES: 1. (E) = EXISTING
2. REFERENCES: [illegible] "SILAS RAY UNIT 10 WATER BALANCE"

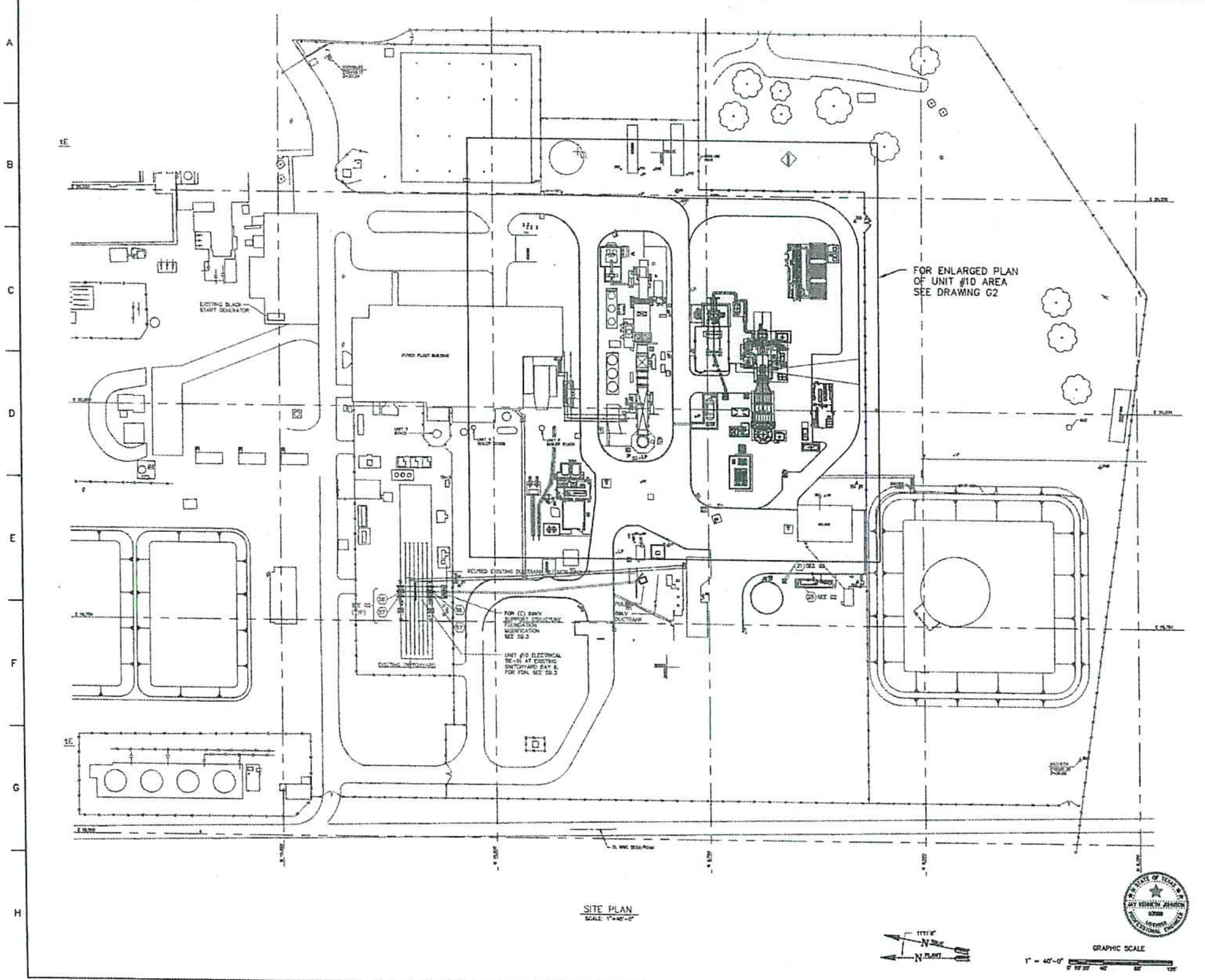


FLOW DIAGRAM

BPUB
SILAS RAY
POWER PLANT

BROWNSVILLE PUBLIC UTILITIES BOARD

SHEET 1 OF 1



REV.	DATE	REVISION DESCRIPTION	DRAWN	APPD
3	1-7-05	AS BUILT	DC	JKJ
2	6-10-04	IFC & REVISED AS NOTED PER G2	RDR	JKJ
1	1-22-04	REVISED EQUIPT. LOC. PER G2	RDR	JKJ
0	12-5-03	ISSUED FOR APPROVAL	RDR	JKJ

PB Power, Inc.
A Parsons Brinckerhoff Company

BPP Brownsville Power Partners

Brownsville Public Utilities Board

SILAS RAY UNIT 10

SITE PLAN

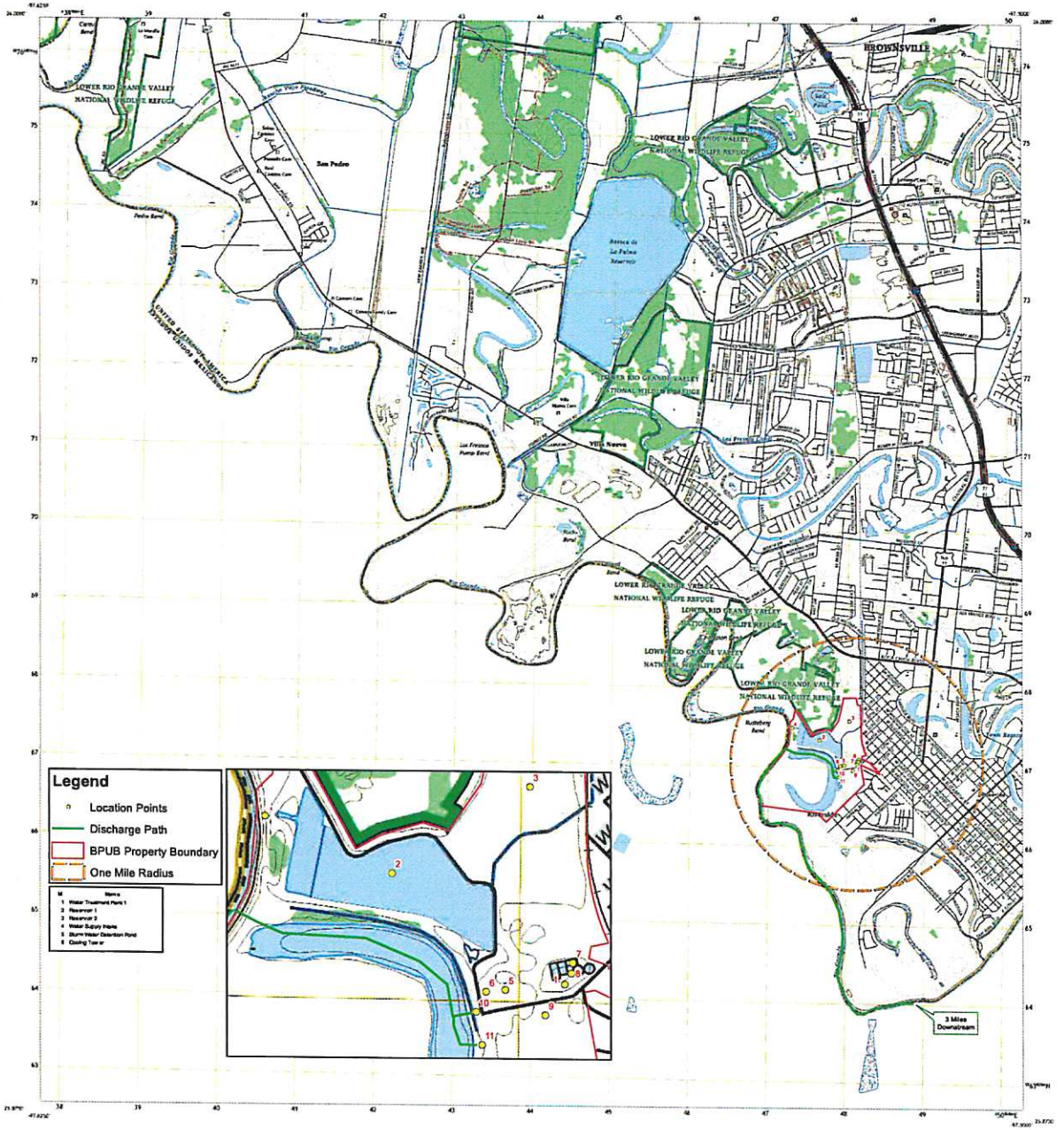
RDR
JJB
RS

DRAWING NO. G1 REV 3

USGS U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

US Topo

WEST BROWNSVILLE QUADRANGLE
TEXAS - CAMERON COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey

SCALE 1:24 000

ROAD CLASSIFICATION

WEST BROWNSVILLE, TX, TAM
2017

Silas Ray Power Plant Water Treatment Chemical List

RO #9/ De-Mineralizer Area

-Sodium Bi-Sulfite 40-43% (Commodity)
-Hypersperce MDC700 Anti-Scalent (GE)
-Sodium Hydroxide 50% (Commodity)
-Sulfuric Acid 93% (Commodity)
-Hydrochloric Acid 37% (Commodity)

Chemical Storage Building

-Conntect 6000 (Conntect Inc.)
-Citric Acid (Commodity)
-Sodium Hydroxide (Commodity)
-Salt Pellets, 99.9% Additive Free (Culligan)
-Tri-Sodium Phosphate (Commodity)
-Sodium Bicarbonate (Commodity)

RO/EDI Unit

-Sodium Hydroxide (Commodity)
-Hypersperce MDC700 Anti-Scalent (GE)

Cooling Tower #5&6 Chemical Storage Building

-5640 Flex Pro Corrosion Inhibitor (Chem Treat)
-CL-4125 Corrosion Inhibitor (Chem Treat)
-Chlorine Gas (Praxair)
-Sulfur Dioxide (Praxair)
-Sulfuric Acid 93% (Commodity)

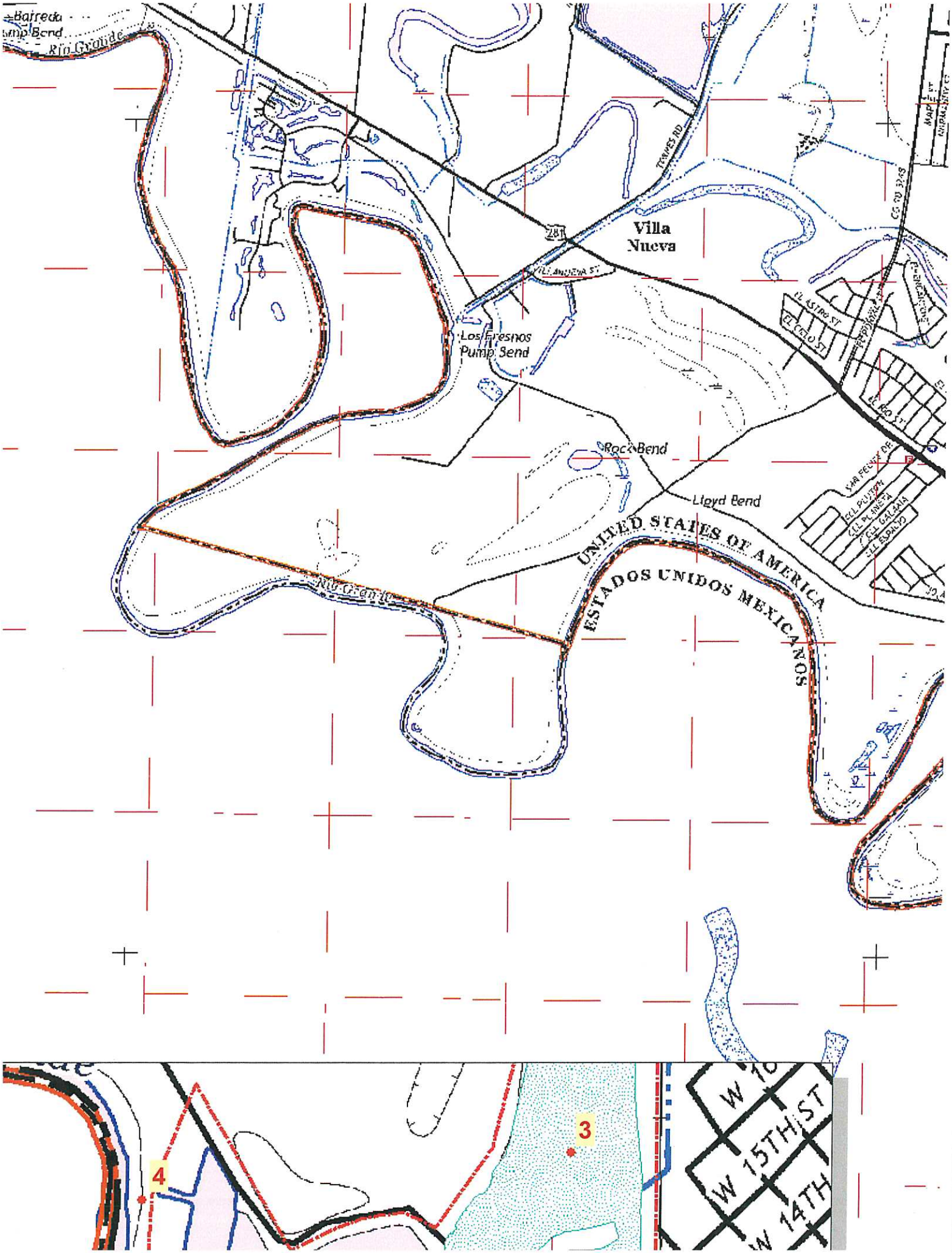
Cooling Tower #10 Chemical Skid

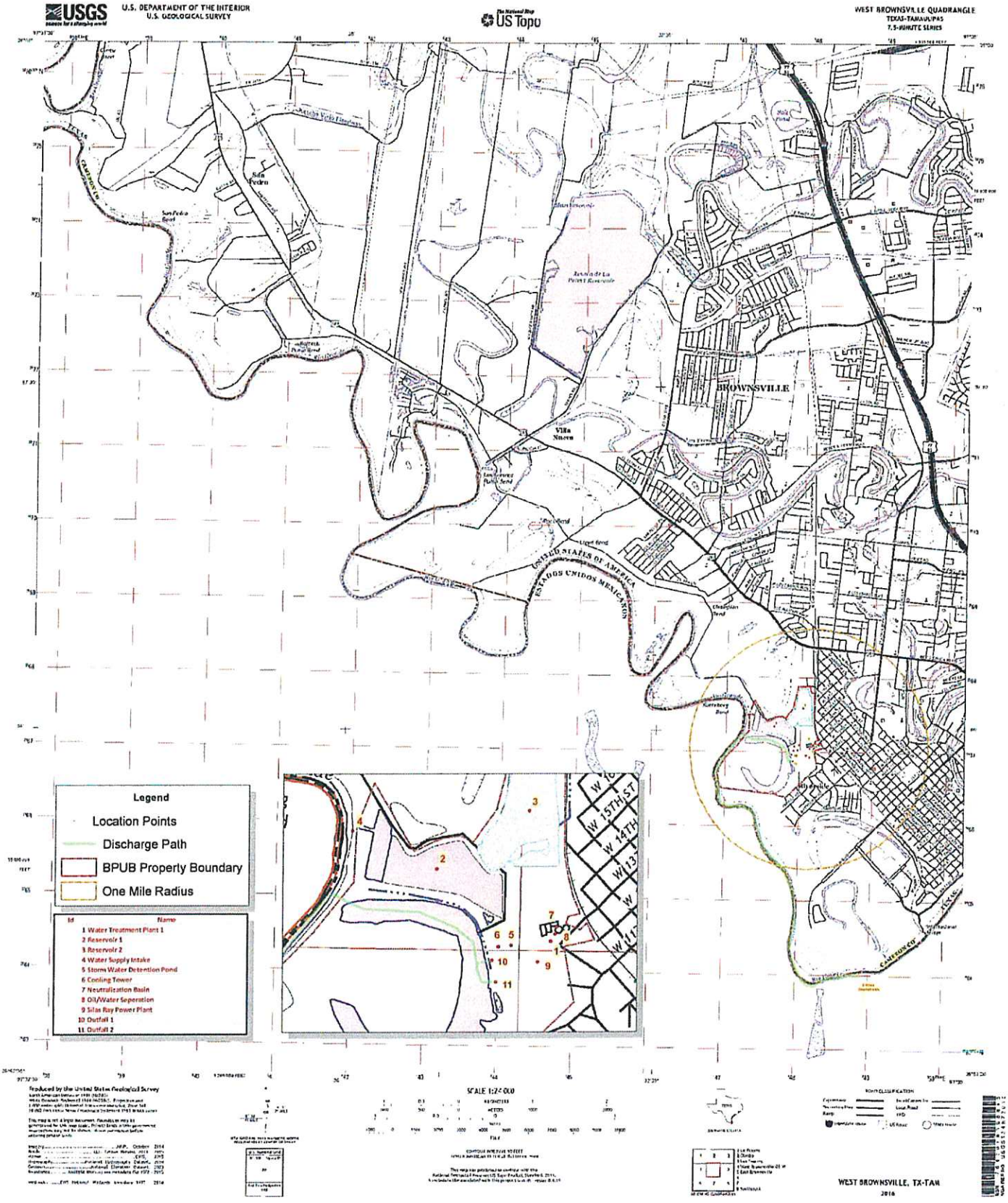
-CL-1492 Corrosion Inhibitor (Chem Treat)
-CL-1429 Corrosion Inhibitor (Chem Treat)
-Sulfuric Acid 93% (Commodity)
-ACL-90 Chlorinating Tablets (Leslie Pools)

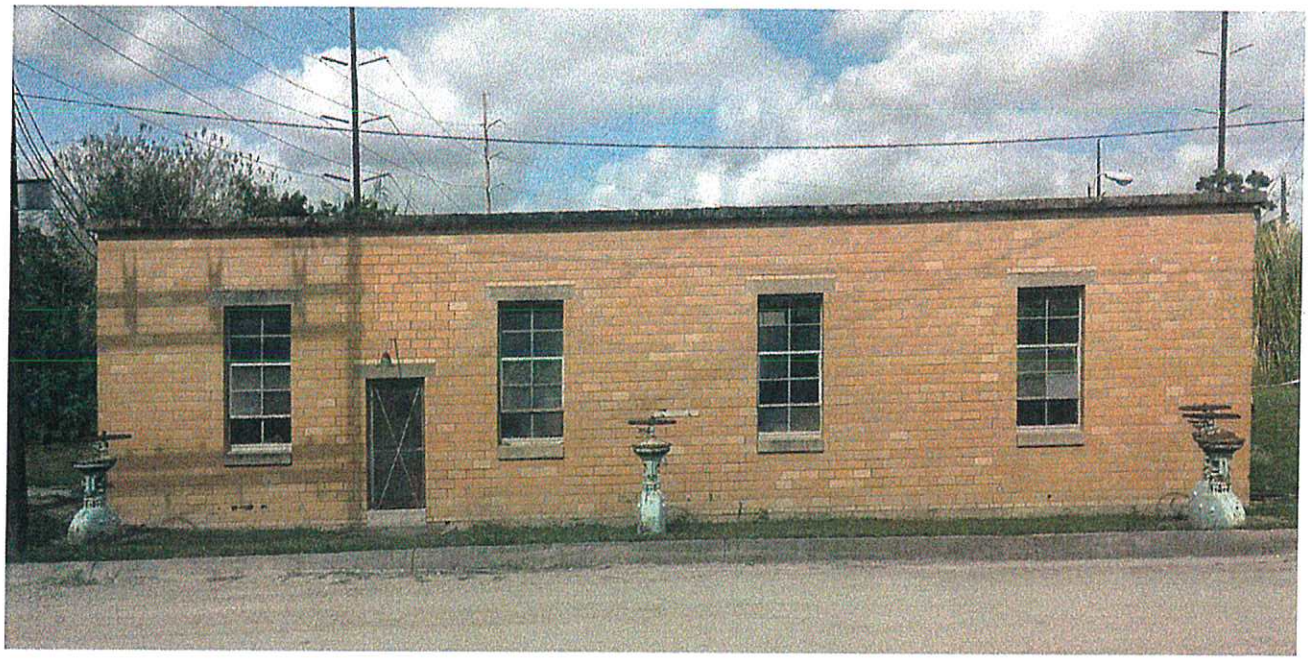
Silas Ray Basement Area

-Tri-Sodium Phosphate (Commodity)
-BL-1353 Boiler Guard (ChemTreat)
-BL-1559 (ChemTreat)
-BL-1285 DEHA (ChemTreat)
-Sodium Bicarbonate, Anhydrous (Commodity)
-Elimin-Ox (Nalco)

BPUB POWER AND WATER PLANT


Barreda
Pump Bend
Rio Grande
Villa
Nueva
281
Los Fresnos
Pump Bend
Roca Bend
Lloyd Bend
UNITED STATES OF AMERICA
ESTADOS UNIDOS MEXICANOS
Rio Grande
3
4
W 15TH ST
W 14TH


USGS
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
US Topo
WEST BROWNSVILLE QUADRANGLE
TEXAS-TAMAULIPAS
7.5-MINUTE SERIES
BROWNSVILLE
Villa Nueva
UNITED STATES OF AMERICA
ESTADOS UNIDOS MEXICANOS
Legend
Location Points
Discharge Path
BPUB Property Boundary
One Mile Radius
Id Name
1 Water Treatment Plant 1
2 Reservoir 1
3 Reservoir 2
4 Water Supply Intake
5 Storm Water Detention Pond
6 Cooling Tower
7 Neutralization Basin
8 Oil/Water Seperation
9 Silas Ray Power Plant
10 Outfall 1
11 Outfall 2
W 15TH ST
W 14TH
Produced by the United States Geological Survey
SCALE 1:24 000
WEST BROWNSVILLE, TX-TAM
2016

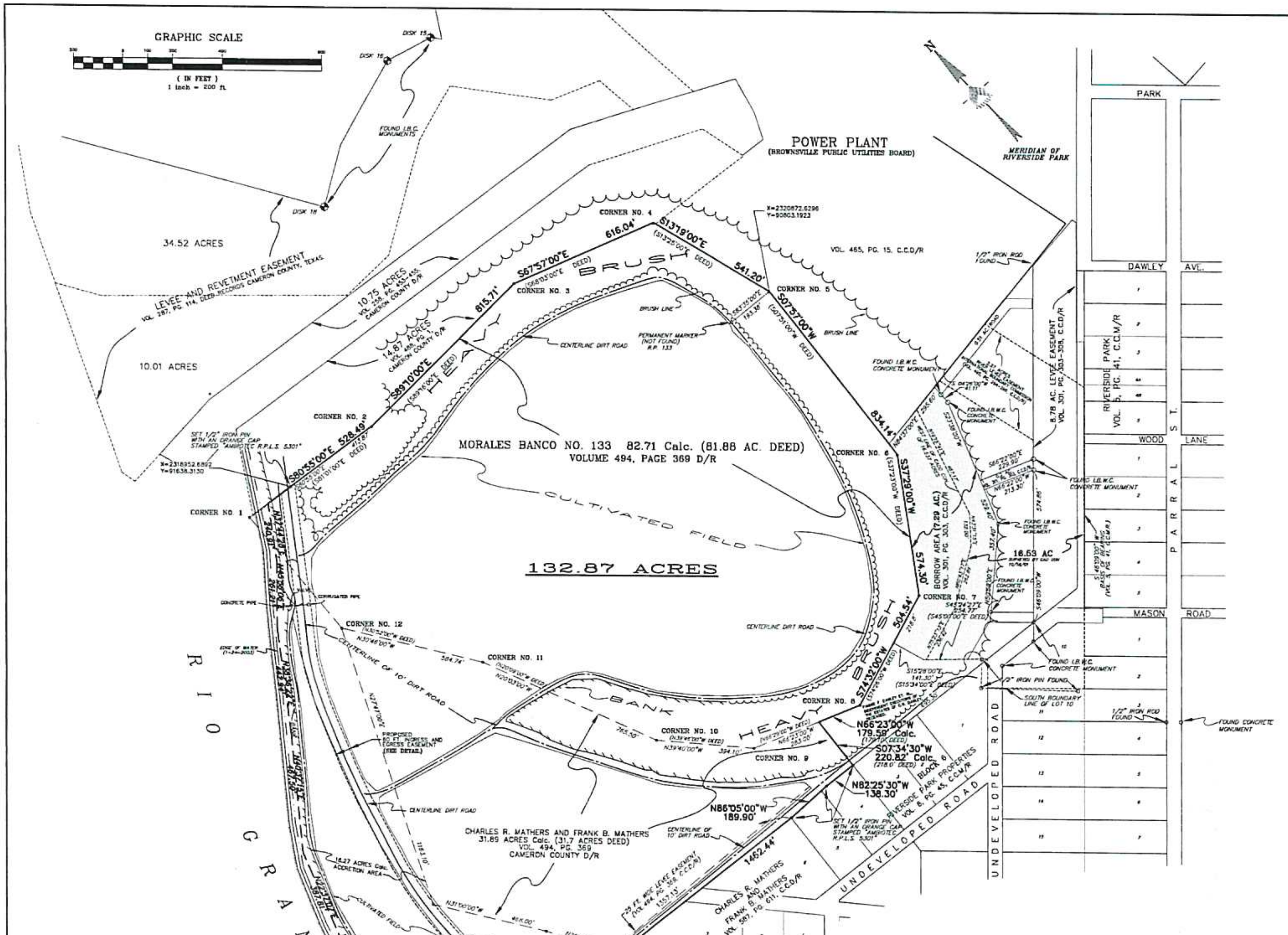


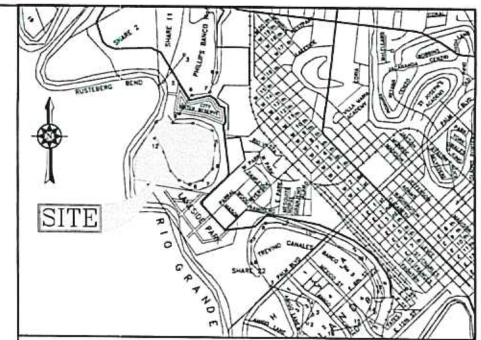
Pump House Building built in 1948.

Silas Ray Power Plant built in 1948.

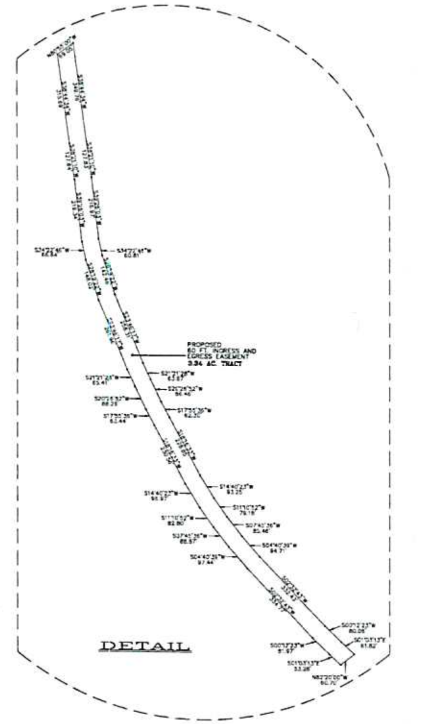
Outfall 002 discharge point to Banco Morales.

Outfall 001 discharge point to Banco Morales.





VICINITY MAP SCALE: 1" = 2000'



DETAIL

NOTES

1) THIS TRACT LIES IN ZONE " A " AS PER THE F.I.A. FLOOD INSURANCE RATE MAP OF COMMUNITY NO. 480101, PANEL NO. 0335 B, EFFECTIVE DATE SEPTEMBER 15, 1983

2) MONUMENTATION FOUND ALONG THE 14.537 ACRES TRACT AND THE 3.898 ACRES TRACT DONE BY ARIEL CHAVEZ II WAS USED FOR BASIS OF BEARING. JOB NUMBER FB-4807 AND FB-13822

3) COORDINATES SHOWN ARE BASED ON THE TEXAS COORDINATE SYSTEM SOUTH ZONE AS CALCULATED FROM TRACT NO. 276 PREPARED FOR U.S. FISH AND WILDLIFE BY MEJIA & ROSE.

"THE UNDERSIGNED HEREBY CERTIFIES THAT THIS SURVEY, AS DESCRIBED HEREON WAS MADE ON THE GROUND ON 01-24-2003 THAT THE ONLY IMPROVEMENTS ON THE GROUND ARE AS SHOWN; THAT THERE ARE NO VISIBLE ENCROACHMENTS, NO VISIBLE OVERLAPPING, APPARENT CONFLICTS OR VISIBLE EASEMENTS, EXCEPT AS SHOWN HEREON."

VICENTE MENDEZ
Registered Professional Land Surveyor No. 5301

SURVEY OF

A 132.87 ACRE TRACT COMPRISED OF ALL OF MORALES BANCO NO. 133 (82.71 AC.) AND A 31.89 ACRE TRACT INCLUDING ALL ACCRETED LAND DESCRIBED IN VOLUME 494, PAGE 369, DEED RECORDS, SHARE 22, ESPIRITU SANTO GRANT, BROWNSVILLE, CAMERON COUNTY, TEXAS;

SURVEYED FOR:
BROWNSVILLE PUBLIC UTILITIES BOARD
MAY 1, 2003

REVISED AUGUST 12, 2003 : TO SHOW CHANGE IN TOTAL ACREAGE

AMBIOTEC
CIVIL ENGINEERING GROUP, INC.
5420 Paredes Line Road, Brownsville, Texas 78526
(956)548-9333
Fax (956)548-9399
PROJ. #1745
Drawn by: J.G. B

ATTACHMENT 4

CHEMICALS- SDS

1. CL4132
2. CL5640
3. ACL 90
4. BL1285
5. BL1353
6. BL1559
7. CL1429
8. CL1492
9. CL2 LIQUIFIED GAS UNDER PRESSURE
10. CITRIC ACID
11. CONNECT 6000
12. LIQUID CAUSTIC SODA
13. SODIUM HYDRIXIDE
14. MORTON SALT
15. SODIUM BI CARBONATE
16. SULPHUR DIOXIDE
17. SODIUM BI SULPHITE 40%
18. SULPHUR DIOXIDE
19. SULPHURIC ACID 93%
20. TRI SODIUM PHOSPHATE12 HYDRATECRYSTALLINE

PLAIN LANGUAGE SUMMARY

PLS

ENGLISH

&

SPANISH

TCEQ – 20972

Wastewater Individual Permit Application

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

PLAIN LANGUAGE SUMMARY FOR TPDES OR TLAP PERMIT APPLICATIONS

Plain Language Summary Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

Applicants should use this template to develop a plain language summary as required by Title 30, Texas Administrative Code (30 TAC), Chapter 39, Subchapter H. Applicants may modify the template as necessary to accurately describe their facility as long as the summary includes the following information: (1) the function of the proposed plant or facility; (2) the expected output of the proposed plant or facility; (3) the expected pollutants that may be emitted or discharged by the proposed plant or facility; and (4) how the applicant will control those pollutants, so that the proposed plant will not have an adverse impact on human health or the environment.

Fill in the highlighted areas below to describe your facility and application in plain language. Instructions and examples are provided below. Make any other edits necessary to improve readability or grammar and to comply with the rule requirements.

If you are subject to the alternative language notice requirements in 30 TAC Section 39.426, **you must provide a translated copy of the completed plain language summary in the appropriate alternative language as part of your application package**. For your convenience, a Spanish template has been provided below.

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS
Enter 'INDUSTRIAL' or 'DOMESTIC' here WASTEWATER/STORMWATER
The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

Brownsville Public Utilities Board (CN603752932) operates Silas Ray Power plant (RN100219450), a Electric Power Generating Facility. The facility is located at 94 W 13th Street, in Brownsville, Cameron County, Texas 78520. Brownsville Public Utilities Board has applied to TCEQ (Texas Commission on Environmental Quality to renew Texas Pollutant Discharge Elimination System (TPDES) to authorize the discharge of treated waste water at a volume not to exceed 390,000 gallons per day.

Discharges from the facility are expected to contain Free Available Chlorine,Aluminium, Copper Total, Total dissolved solids, chloride,Sulphate. Treated waste water from Power Plant will be treated by Cooling Tower 5/6 makeup is potable water treated with H2SO4, Cl2, and a scale inhibitor. The blowdown is dechlorinated with SO2 and discharged via Outfall 001. Outfall 002 receives wastewater from three separate areas prior to discharge. The first is from the Stormwater Runoff. There are no chemicals added to the stormwater. The second is treated wastewater from the Neutralization Basin (Outfall102). At the basin, the chemicals

used are NaOH and Citric Acid to control the pH. The third is Plant Low Volume Waste. This wastewater is made up of Oil/Water separator #9 and #10, Unit #6 Boiler blowdown, Cooling Tower #10 blowdown, and water treatment reject and membrane cleaning..

PLANTILLA EN ESPAÑOL PARA SOLICITUDES NUEVAS/RENOVACIONES/ENMIENDAS DE TPDES o TLAP

AGUAS RESIDUALES Introduzca 'INDUSTRIALES' o 'DOMÉSTICAS' aquí **/AGUAS PLUVIALES**

El siguiente resumen se proporciona para esta solicitud de permiso de calidad del agua pendiente que está siendo revisada por la Comisión de Calidad Ambiental de Texas según lo requerido por el Capítulo 39 del Código Administrativo de Texas 30. La información proporcionada en este resumen puede cambiar durante la revisión técnica de la solicitud y no es una representación ejecutiva fedérale de la solicitud de permiso.

La Junta de Servicios Públicos de Brownsville (CN603752932) opera la planta de energía Silas Ray (RN100219450), una instalación de generación de energía eléctrica. La instalación está ubicada en 94 W. 13th Street, en Brownsville, Condado de Cameron, Texas 78520. La Junta de Servicios Públicos de Brownsville ha solicitado a la TCEQ (Comisión de Calidad Ambiental de Texas la renovación del Sistema de Eliminación de Descargas de Contaminantes de Texas (TPDES) para autorizar la descarga de desechos tratados. aguas residuales en un volumen que no exceda los 390,000 galones por día.
Se espera que las descargas de la instalación contengan cloro libre disponible, aluminio, cobre total, sólidos disueltos totales, cloruro y sulfato. Agua residual tratada de la Planta de Energía será tratada por el maquillaje de la Torre de Enfriamiento 5/6 agua potable tratada con H2SO4, Cl2 y un inhibidor de incrustaciones. La purga se declora con SO2 y se descarga a través de la salida 001. La salida 002 recibe aguas residuales de tres áreas separadas antes de la descarga. El primero es de la corriente de aguas pluviales. No se agregan productos químicos al agua pluvial. El segundo son aguas residuales tratadas de la Cuenca de Neutralización (Salida 102). En la cuenca los químicos utilizados son NaOH y ácido cítrico para controlar el pH. El tercero es el de Residuos de Plantas de Bajo Volumen. Estas aguas residuales se componen del separador de aceite/agua #9 y #10, la unidad #6 de purga de caldera, la purga de la torre de enfriamiento #10 y el rechazo del tratamiento de agua y la limpieza de membranas.

INSTRUCTIONS

1. Enter the name of applicant in this section. The applicant name should match the name associated with the customer number.
2. Enter the Customer Number in this section. Each Individual or Organization is issued a unique 11-digit identification number called a CN (e.g. CN123456789).
3. Choose "operates" in this section for existing facility applications or choose "proposes to operate" for new facility applications.
4. Enter the name of the facility in this section. The facility name should match the name associated with the regulated entity number.
5. Enter the Regulated Entity number in this section. Each site location is issued a unique 11-digit identification number called an RN (e.g. RN123456789).
6. Choose the appropriate article (a or an) to complete the sentence.
7. Enter a description of the facility in this section. For example: steam electric generating facility, nitrogenous fertilizer manufacturing facility, etc.
8. Choose "is" for an existing facility or "will be" for a new facility.
9. Enter the location of the facility in this section.
10. Enter the City nearest the facility in this section.
11. Enter the County nearest the facility in this section.
12. Enter the zip code for the facility address in this section.
13. Enter a summary of the application request in this section. For example: renewal to discharge 25,000 gallons per day of treated domestic wastewater, new application to discharge process wastewater and stormwater on an intermittent and flow-variable basis, or major amendment to reduce monitoring frequency for pH, etc. If more than one outfall is included in the application, provide applicable information for each individual outfall.
14. List all pollutants expected in the discharge from this facility in this section. If applicable, refer to the pollutants from any federal numeric effluent limitations that apply to your facility.
15. Enter the discharge types from your facility in this section (e.g., stormwater, process wastewater, once through cooling water, etc.)
16. Choose the appropriate verb tense to complete the sentence.
17. Enter a description of the wastewater treatment used at your facility. Include a description of each process, starting with initial treatment and finishing with the outfall/point of disposal. Use additional lines for individual discharge types if necessary.

Questions or comments concerning this form may be directed to the Water Quality Division's Application Review and Processing Team by email at WQ-ARPTeam@tceq.texas.gov or by phone at (512) 239-4671.

Example

Individual Industrial Wastewater Application

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.

ABC Corporation (CN600000000) operates the Starr Power Station (RN10000000000), a two-unit gas-fired electric generating facility. Unit 1 has a generating capacity of 393 megawatts (MWs) and Unit 2 has a generating capacity of 528 MWs. The facility is located at 1356 Starr Street, near the City of Austin, Travis County, Texas 78753.

This application is for a renewal to discharge 870,000,000 gallons per day of once through cooling water, auxiliary cooling water, and also authorizes the following waste streams monitored inside the facility (internal outfalls) before it is mixed with the other wastewaters authorized for discharge via main Outfall 001, referred to as "previously monitored effluents" (low-volume wastewater, metal-cleaning waste, and stormwater (from diked oil storage area yards and storm drains)) via Outfall 001. Low-volume waste sources, metal-cleaning waste, and stormwater drains on a continuous and flow-variable basis via internal Outfall 101.

The discharge of once through cooling water via Outfall 001 and low-volume waste and metal-cleaning waste via Outfall 101 from this facility is subject to federal effluent limitation guidelines at 40 CFR Part 423. The pollutants expected from these discharges based on 40 CFR Part 423 are: free available chlorine, total residual chlorine, total suspended solids, oil and grease, total iron, total copper, and pH. Temperature is also expected from these discharges. Additional potential pollutants are included in the Industrial Wastewater Application Technical Report, Worksheet 2.0.

Cooling water and boiler make-up water are supplied by Lake Starr Reservoir. The City of Austin municipal water plant (CN600000000, PWS 00000) supplies the facility's potable water and serves as an alternate source of boiler make-up water. Water from the Lake Starr Reservoir is withdrawn at the intake structure and treated with sodium hypochlorite to prevent biofouling and sodium bromide as a chlorine enhancer to improve efficacy and then passed through condensers and auxiliary equipment on a once-through basis to cool equipment and condense exhaust steam.

Low-volume wastewater from blowdown of boiler Units 1 and 2 and metal-cleaning wastes receive no treatment prior to discharge via Outfall 101. Plant floor and equipment drains and stormwater runoff from diked oil storage areas, yards, and storm drains are routed through an oil and water separator prior to discharge via Outfall 101. Domestic wastewater, blowdown, and backwash water from the service water filter, clarifier, and sand filter are routed to the Starr Creek Domestic Sewage Treatment Plant, TPDES Permit No. WQ0010000001, for treatment and disposal. Metal-cleaning waste from equipment cleaning is generally disposed of off-site.

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224 RIO VISTA AVE
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PELAYO ESTHER
1707 W ELIZABETH ST
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MCARDLE ROSA M
5 WEST 10TH STREET
BROWNSVILLE TX 78520-4332

GARZA ROGELIO
7570 US Highway 281
Brownsville TX 78520-9533

SALINAS CLAUDIA IVETH
2233 Ana Laura Ct
Brownsville TX 78521-8058

BERNAL DIANA
244 RIO VISTA AVE
BROWNSVILLE TX 78520

SALINAS MARIO A
44 BORDER ST
BROWNSVILLE TX 78520

GARZA MINERVA
34920 CALIFORNIA RD
LOS FRESNOS 78566

PEREZ SEVERO S
3305 DAISY DR
BROWNSVILLE 78521-8116

HALL NICHOLAS
1810 ANTIETAM
PITTSBURG 15206-1124

REYNA JESUS JR &REYNA MARICELA
335 MASON AVE
BROWNSVILLE 78520-4322

GARZA ROGELIO
7570 US HIGHWAY 281
BROWNSVILLE TX 78520-9533

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GARCIA ARMANDO HUMBERTO
338 RIO VISTA AVE
BROWNSVILLE TX 78520-4370

DE LA GARZA ELOY
224 RIO VISTA AVE
BROWNSVILLE TX 78520

JIMENEZ LUIS ANGEL
314 n PARK DR
BROWNSVILLE TX 78520-4328

TORRES EVELYN OCHOA
304 RIO VISTA AVE
Brownsville TX 78520-4370

AME & MAE INVESTMENTS LLC
2203 REEDWAY CT
ARLINGTON 76018-3136

HERNANDEZ DELFINA ESTER
304 RIO VISTA AVE
BROWNSVILLE TX 78520-4370

MORENO JOSE LUIS & SANDRA GILSON
215 N PARK DR
BROWNSVILLE TX 78520-4368

ACOSTA DIANA E
14 W 12TH ST
BROWNSVILLE TX 78520-5657

GARCIA JUAN ANTONIO & ARACELI GARCIA GREGORY
624 PARRAL ST
BROWNSVILLE TX 78520-4338

MENDIOLA JOSE ANGEL JR
1906 W ELIZABETH ST
BROWNSVILLE TX 78520-4434

GARZA ARNOLDO R & JUANITA B
1545 W SAINT CHARLES ST
BROWNSVILLE TX 78520-6553

PELAYO ESTHER
1707 W ELIZABETH ST
BROWNSVILLE TX 78520-6644

MORALES ROBERTO
157 WOOD AVE
Brownsville TX 78520

LUNA ZOILA ELIZONDO
5 W 11TH STREET
Brownsville TX 78520

GONZALEZ JESUS MEDRANO & MARIA CONCEPCION
672 Parral St
Brownsville TX 78520-4338

ESCOBEDO MARGARITA RUIZ
24 W 12TH ST
BROWNSVILLE TX 78520-5657

JARAMILLO JESUS MARIO &LETICIA
304 NORTH PARK DR
BROWNSVILLE TX 78520-4328

DURAN GERARDO RAFAEL
17 CALLE CHIQUITA
BROWNSVILLE TX 78520-4881

RODRIGUEZ VENANCIO J & ADRIANA
334 MASON AVE
BROWNSVILLE TX 78520

CAVAZOS JOSE ANGEL ET AL & EST OF MARIA CAVAZOS
634 PARRAL CT
Brownsville TX 78520-4316

LOYA JUAN
544 PARRAL ST
BROWNSVILLE TX 78520-4316

RIO BRAVO REAL ESTATE JACKSON ELIZABETH LLC
136 RUBEN TORRES SR BLVD
BROWNSVILLE TX 78520-9137

RODRIGUEZ JUAN HUMBERTO AKA JUAN H RODRIGUEZ CASTRUITA &
129 Dawley ST
BROWNSVILLE TX 78520-4365

L35 DAWLEY AVENUE LAND TRUST
L35 DAWLEY ST
BROWNSVILLE TX 78520-4365

HERNANDEZ MARCOS JESUS &HERNANDEZ VANESSA
764 PARRAL ST
BROWNSVILLE TX 78520

SALGADO EMANUEL
1552 E HARRISON ST
BROWNSVILLE TX 78520

GARZA ARNALDO R & JUANITA B
.545 W SAINT CHARLES ST
BROWNSVILLE TX 78520-6933

WESTERMEIER THOMAS GLEN & MARIE JO WESTERMEIER
4693 LAKEWAY DR
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FLORES TOMAS & HERLINDA
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BROWNSVILLE TX 78520

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690 PARRAL ST
Brownsville TX 78520-9283

ALEJANDRO ELVIA BELMARES
15 MANTUA ST
Brownsville TX 78520-4338

DIMAS TERESA
365 MASON AVE
BROWNSVILLE TX 78520-4322

HERNANDEZ CARLO G
2965 E 13TH ST
BROWNSVILLE TX 78521

RAMIREZ MARIA T & EST OF ADOLFO RAMIREZ
235 WOOD AVE
BROWNSVILLE TX 78520-4361

ANAYA SANDRA & MARLEN
604 PARRAL ST
Brownsville TX 78520

SALINAS ANA MARIA
414 PARRAL ST
Brownsville TX 78520

MONTEMAYOR CARLOS
PO BOX 6361
BROWNSVILLE TX 78523-4334

VASQUEZ LUIS ANTONIO & VASQUEZ SYLVIA PAOLA
55 W 13TH STREET
BROWNSVILLE TX 78520-5660

SANCEZ ENEDINA & NAHILA A TORRES
347 RIO VISTA AVE
BROWNSVILLE TX 78520-4369

BROWNSVILLE PUBLIC UTILITIES BOARD
PO BOX 3270
Brownsville TX 78523-3270

PARDO DANIEL
85 VARADERO ST
Brownsville TX 78521-5660

HERNANDEZ EMILIA
35 BORDER ST
Brownsville TX 78520

ESCAMILLA GILBERTO JR & DAHLIA M
127 DAWLEY ST
Brownsville TX 78520

HERNANDEZ CARLO G
2965 E 13TH ST
BROWNSVILLE TX 78526

ORTIZ PABLO JR & LORI ANN CORTEZ
694 PARRAL ST
BROWNSVILLE TX 78520-4338

ESQUIVEL JOSEFA NIETO
1337 W FRONTON ST
BROWNSVILLE TX 78520-6501

ROJAS VERONICA
324 RIO VISTA AVE
Brownsville TX 78520-4370

GRANJA ARTURO AMALIA
254 RIO VISTA AVE
BROWNSVILLE TX 78520-4342

GREER KARI & KELSEY DANIEL GREER & SUMMER LEE RHOBY GREER
118 E SAINT FRANCIS ST #A
BROWNSVILLE TX 78520-5416

GARZA ELIDA M
193 GILSON RD
BROWNSVILLE TX 78520-9159

MARTINEZ LAURE ANDREA
132 DAWLEY AVE
BROWNSVILLE TX 78520

AVILES MARCOS ANTONIO
3285 MANO DR
BROWNSVILLE TX 78520-1512

HERNANDEZ CARLO G
2965 E 13TH ST
BROWNSVILLE TX 78521

DE LUNA MANUEL G
354 MASON AVE
Brownsville TX 78520-4323

GONZALEZ JESUS MEDRANO & MARIO CONCEPION
672 PARRAL ST
BROWNSVILLE TX 78520-4338

KASSAVICHA JOHN WILLIAM JR
125 DAWLEY ST
BROWNSVILLE TX 78520-4365

RAMIREZ LETICIA
111 W 14TH STREET
BROWNSVILLE TX 78520-6511

ANAYA SANDRA & ROBERTO MADRAZO
604 PARRAL ST
BROWNSVILLE TX 78520

PONCE ERON & TIMOTEA
264 RIO VISTA
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ELIZONDO RAFAEL III 1437 CALLE ESPACIO BROWNSVILLE TX 78520-4004	BENAVIDES JULIA & RICHARDS MARIA DE LA LUZ 574 LOS ALTOS ST BROWNSVILLE TX 78520-4317	RAMIREZ LETICIA 19019 Cambridge Vale Ct Cypress TX 77429-1432
PARDO EMILIO & CONSUELO G 670 Parral St Brownsville TX 78520-4338	GARCIA YOLANDA G 614 PARRAL ST BROWNSVILLE TX 78520-4338	EDWAED MATHERS FARMS LP 600 RIVERSIDE BLVD Brownsville TX 78520-4358
GONZALEZ JESUS MEDRANO 672 PARRAL ST Brownsville TX 78520-4338	CITY OFBROWNSVILLE 404 E WASHINGTON ST BROWNSVILLE TX 78520	HERNANDEZ DORISA 630 PARRAL ST BROWNSVILLE TX 78520-4338
DIMAS TERESA 365 MASON AVE BROWNSVILLE TX 78520-4322	REYNA OLGA & EST OF JESUS R REYNA 345 MASON AVE BROWNSVILLE TX 78520-4322	ALVAREZ MIGUEL A 1245 W FRONTON ST BROWNSVILLE TX 78520-5621
MENDEZ ROBERTO C EST OF 1637 W LEVEE ST BROWNSVILLE TX 78520-6675	HERNANDEZ DIANA 111 W 14TH ST BROWNSVILLE TX 78520-6511	VALDEZ BERTHA NELLY ANAYA 604 PARRAL ST Brownsville TX 78520
LEDESMA EDNA 130 DAWLEY AVE Brownsville TX 78520	BROWNSVILLE PUBLIC UTILITIES BOARD PO Box 3270 Brownsville TX 78523-3270	REYNA JESUS ROLANDO JR & MARICELLA IVETTE 335 MASON AVE BROWNSVILLE TX 78520-4322
GARZA GUADALUPE G 4077 WESTLAND DR BROWNSVILLE TX 78521-3661	CAVAZOS JESUS NARCISO JR 744 PARRAL ST BROWNSVILLE TX 78520-4340	TRUJILLO ROBERTO & MARIA G 325 MASON AVE BROWNSVILLE TX 78520-4322
GARZA JUAN M & MARIA E 284 W PARK Brownsville TX 78520	OLGUIN ELPIDIO & ISABEL 234 WOOD AVE Brownsville TX 78520	RAMIREZ LETICIA 111 W 14TH ST BROWNSVILLE TX 78520-6511
VALADEZ GERARDO & VIRGINIA RAMOS 580 RED ROSE ST BROWNSVILLE TX 78520-9315	VALADEZ GERARDO & VIRGINIA RAMOS 580 RED ROSE ST BROWNSVILLE TX 78520-9315	ORTEGA GLORIA M PO BOX 3515 BROWNSVILLE TX 78523-3515
CAVAZOS JOE A ET UX 364 MASON AVE BROWNSVILLE TX 78520-4323	BUSTOS DANIEL ALBERTO & SANDRA LIZETH JIMENEZ 45 W 12TH ST BROWNSVILLE TX 78520-5656	LOZANO LORENZO JR & ROLANDO LOZANO & MARTA ELENA LOZANO 284 RIO VISTA AVE BROWNSVILLE TX 78520-4342

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GARZA ADOLFO 424 PARRAL ST BROWNSVILLE TX 78520-4334	GOOD SHEPHERD PROPERTIES LP 45 FIRESIDE DR BROWNSVILLE TX 78521-1644	CASTELLANOS JORGE & AMPARO CASTELLANOS 318 RIO VISTA AVE BROWNSVILLE TX 78520-4370
MENDEZ ROBERTO C EST OF 1637 W LEVEE ST BROWNSVILLE TX 78520-6675		

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SAFETY DATA SHEET

1. Identification

Product identifier CL4132

Other means of identification

Product code CL4132

Recommended use Cooling Water Treatment

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name ChemTreat

Address 5640 Cox Road
Glen Allen, VA 23060
United States

Telephone 800-648-4579

E-mail Not available.

Emergency phone number 800-424-9300

2. Hazard(s) identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
	Reproductive toxicity	Category 2
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 3
	Hazardous to the aquatic environment, long-term hazard	Category 3

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement May be corrosive to metals. Causes severe skin burns and eye damage. Causes serious eye damage. Suspected of damaging fertility or the unborn child. Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep only in original container. Do not breathe mist/vapors. Wash thoroughly after handling. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.

Storage Store locked up. Store in corrosive resistant container with a resistant inner liner.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information 17.5% of the mixture consists of component(s) of unknown acute oral toxicity. 17.5% of the mixture consists of component(s) of unknown acute dermal toxicity. 20% of the mixture consists of component(s) of unknown acute inhalation toxicity. 17.5% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
sodium;4-chloro-5-(4-methylphenyl) -1,2-diaza-3-azanidacyclopenta-1,4 -diene		202420-04-0	10 - < 20
Sodium tolyltriazole		64665-57-2	1 - < 3
sodium;hydroxide		1310-73-2	1 - < 3
Other components below reportable levels			80 - < 90

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

General information IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions Move containers from fire area if you can do so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up	Prevent entry into waterways, sewer, basements or confined areas. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist/vapors. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store locked up. Store in a cool, dry place out of direct sunlight. Store in corrosive resistant container with a resistant inner liner. Store in tightly closed container. Keep only in the original container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
sodium;hydroxide (CAS 1310-73-2)	PEL	2 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value
sodium;hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
sodium;hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection	Chemical respirator with organic vapor cartridge and full facepiece.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Respiratory protection	Chemical respirator with organic vapor cartridge and full facepiece.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Observe any medical surveillance requirements. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Liquid. Liquid
Color	Dark Straw
Odor	Mild
Odor threshold	Not available.
pH	13 @ 100%
Melting point/freezing point	12.20 °F (-11.00 °C)
Initial boiling point and boiling range	210.2 °F (99 °C) estimated
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0.00001 hPa estimated
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	8.59 lbs/gal estimated
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Percent volatile	80 % estimated
Pounds per gallon	9.68
Specific gravity	1.16 @ 20C

10. Stability and reactivity

Reactivity	Reacts violently with strong acids. This product may react with oxidizing agents. May be corrosive to metals.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials. Do not mix with other chemicals.
Incompatible materials	Strong acids. Strong oxidizing agents. Oxidizing agents. Metals.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity	Not known.
Skin corrosion/irritation	Causes severe skin burns and eye damage.
Serious eye damage/eye irritation	Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity	Suspected of damaging fertility or the unborn child.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity Harmful to aquatic life with long lasting effects.

Product		Species	Test Results
CL4132			
Aquatic			
Crustacea	IC25	Ceriodaphnia dubia	22.4 mg/l, 7 days
	LC50	Ceriodaphnia dubia	108 mg/l, 48 hours
	LOEC	Ceriodaphnia dubia	25 mg/l, 7 days
	NOEC	Ceriodaphnia dubia	12.5 mg/l, 7 days
Fish	IC25	Fathead minnow (Pimephales promelas)	31.4 mg/l, 7 days
	LC50	Fathead minnow (Pimephales promelas)	44.1 mg/l, 96 hours
	LOEC	Fathead minnow (Pimephales promelas)	25 mg/l, 7 days
	NOEC	Fathead minnow (Pimephales promelas)	12.5 mg/l, 7 days

Persistence and degradability	No data is available on the degradability of any ingredients in the mixture.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.

Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel] The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN3267
UN proper shipping name	Corrosive liquid, basic, organic, n.o.s. (Chlorotolyltriazole sodium salt)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Label(s)	8
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	B2, IB2, T11, TP2, TP27
Packaging exceptions	154
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN3267
UN proper shipping name	Corrosive liquid, basic, organic, n.o.s. (Chlorotolyltriazole sodium salt)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Label(s)	8
Packing group	II
Environmental hazards	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN3267
UN proper shipping name	Corrosive liquid, basic, organic, n.o.s. (Chlorotolyltriazole sodium salt)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Label(s)	8
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Toxic Substances Control Act (TSCA)

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

sodium;hydroxide (CAS 1310-73-2) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories
Corrosive to metal
Skin corrosion or irritation
Serious eye damage or eye irritation
Reproductive toxicity

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

sodium;hydroxide (CAS 1310-73-2)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 05-26-2021

Revision date 02-02-2022

Version # 02

HMIS® ratings
Health: 3
Flammability: 0
Physical hazard: 0
Personal protection: X

Disclaimer
ChemTreat cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available. Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ChemTreat, Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will ChemTreat, Inc. be responsible for damages of any nature whatsoever resulting from the use or reliance upon information. No representation or warranties, either expressed or implied, of merchantability, fitness for a particular purpose, or of any other nature are made hereunder with respect to information or the product to which information refers.

Revision information Transport Information: Material Transportation Information

Other information Prepared by: Product Compliance Department; ProductCompliance@chemtreat.com

ATTACHMENT 4

CHEMICALS- SDS

1. CL4132
2. CL5640
3. ACL 90
4. BL1285
5. BL1353
6. BL1559
7. CL1429
8. CL1492
9. CL2 LIQUIFIED GAS UNDER PRESSURE
10. CITRIC ACID
11. CONNECT 6000
12. LIQUID CAUSTIC SODA
13. SODIUM HYDRIXIDE
14. MORTON SALT
15. SODIUM BI CARBONATE
16. SULPHUR DIOXIDE
17. SODIUM BI SULPHITE 40%
18. SULPHUR DIOXIDE
19. SULPHURIC ACID 93%
20. TRI SODIUM PHOSPHATE12 HYDRATECRYSTALLINE

SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

Product Name:	ChemTreat CL5640
Product Use:	Cooling Water Treatment
Supplier's Name:	ChemTreat, Inc.
Emergency Telephone Number:	(800)424-9300 (Toll Free)
Address (Corporate Headquarters):	5640 Cox Road Glen Allen, VA 23060
Telephone Number for Information:	(800)648-4579
Date of SDS:	June 27, 2017
Revision Date:	June 27, 2017
Revision Number:	17062701AN

Section 2. Hazard(s) Identification

Signal Word: **WARNING**

GHS Classification(s):

Eye damage/irritation – Category 2b
Acute Toxicity Dermal – Category 5
Acute Toxicity Inhalation – Category 5
Acute Toxicity Oral – Category 5

Hazard Statement(s):

H320 Causes eye irritation.
H313 May be harmful in contact with skin.
H333 May be harmful if inhaled.
H303 May be harmful if swallowed.

Precautionary Statement(s):

Prevention: P264 Wash thoroughly after handling.

Response: None.

Storage: None.

Disposal: None.

System of Classification Used: Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Hazards Not Otherwise Classified: None.

Section 3. Composition/Hazardous Ingredients

Component	CAS Registry #	Wt.%
2-Phosphono-1,2,4-butane tricarboxylic acid	37971-36-1	7 - 13

Comments If chemical identity and/or exact percentage of composition has been withheld, this information is considered to be a trade secret.

Section 4. First Aid Measures

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.

Eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Skin: Wash with plenty of soap and water. Call a poison center or doctor/physician if you feel unwell.

Ingestion: DO NOT INDUCE VOMITING. Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

Most Important Symptoms: N/D

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary: N/A

Section 5. Fire Fighting Measures

Flammability of the Product: Not flammable.

Suitable Extinguishing Media: Use extinguishing media suitable to surrounding fire.

Specific Hazards Arising from the Chemical: None known.

Protective Equipment: If product is involved in a fire, wear full protective clothing including a positive-pressure, NIOSH approved, self-contained breathing apparatus.

Section 6. Accidental Release Measures

Personal Precautions: Use appropriate Personal Protective Equipment (PPE).

Environmental Precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.

Methods for Cleaning up: Contain and recover liquid when possible. Flush spill area with water spray.

Other Statements: None.

Section 7. Handling and Storage

Handling: Wear appropriate Personal Protective Equipment (PPE) when handling this product. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Do not ingest. Avoid breathing vapors, mist or dust.

Storage: Store away from incompatible materials (see Section 10). Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations. For Industrial use only.
Store above Freeze Point.

Section 8. Exposure Controls/Personal Protection

Exposure Limits

Component	Source	Exposure Limits
2-Phosphono-1,2,4-butane tricarboxylic acid	N/E	N/E

Engineering Controls: Use only with adequate ventilation. The use of local ventilation is recommended to control emission near the source.

Personal Protection

Eyes:	Wear chemical splash goggles or safety glasses with full-face shield. Maintain eyewash fountain in work area.
Skin:	Maintain quick-drench facilities in work area. Wear butyl rubber or neoprene gloves. Wash them after each use and replace as necessary. If conditions warrant, wear protective clothing such as boots, aprons, and coveralls to prevent skin contact.
Respiratory:	If misting occurs, use NIOSH approved organic vapor/acid gas dual cartridge respirator with a dust/mist prefilter in accordance with 29 CFR 1910.134.

Section 9. Physical and Chemical Properties

Physical State and Appearance:	Liquid, Amber, Clear
Specific Gravity:	1.178 @ 20°C
pH:	3.1 @ 20°C, 100.0%
Freezing Point:	30°F
Flash Point:	N/D
Odor:	Mild
Melting Point:	N/A
Initial Boiling Point and Boiling Range:	N/D
Solubility in Water:	Complete
Evaporation Rate:	N/D
Vapor Density:	N/D
Molecular Weight:	N/D
Viscosity:	<100 CPS @ 20°C
Flammability (solid, gas):	N/D
Flammable Limits:	N/A
Autoignition Temperature:	N/A
Density:	9.82 LB/GA
Vapor Pressure:	N/D
% VOC:	N/D
Odor Threshold	N/D
n-octanol Partition Coefficient	N/D
Decomposition Temperature	N/D

Section 10. Stability and Reactivity

Chemical Stability: Stable at normal temperatures and pressures.

Incompatibility with Various Substances: Strong oxidizers, Strong bases.

Hazardous Decomposition Products: Oxides of carbon, Oxides of nitrogen.

Possibility of Hazardous Reactions: None known.

Reactivity: N/D

Conditions To Avoid: N/D

Section 11. Toxicological Information

Acute Toxicity

Chemical Name	Exposure	Type of Effect	Concentration	Species
2-Phosphono-1,2,4-butane tricarboxylic acid	Oral	LD50	>6500 MG/KG	Rat

Carcinogenicity Category

Component	Source	Code	Brief Description
2-Phosphono-1,2,4-butane tricarboxylic acid	N/E	N/E	N/E

Likely Routes of Exposure: N/D

Symptoms

Inhalation: N/D

Eye Contact: N/D

Skin Contact: N/D

Ingestion: N/D

Skin Corrosion/Irritation: N/D

Serious Eye Damage/Eye Irritation: N/D

Sensitization: N/D

Germ Cell Mutagenicity: N/D

Reproductive/Developmental Toxicity: N/D

Specific Target Organ Toxicity

Single Exposure: N/D

Repeated Exposure: N/D

Aspiration Hazard: N/D

Comments: None.

Section 12. Ecological Information

Ecotoxicity

Species	Duration	Type of Effect	Test Results
Ceriodaphnia dubia	48h	LC50	1768 mg/l
Fathead Minnow	96h	LC50	>10000 mg/l

Persistence and Biodegradability: N/D

Bioaccumulative Potential: N/D

Mobility In Soil: N/D

Other Adverse Effects: N/D

Comments: None.

Section 13. Disposal Considerations

Dispose of in accordance with local, state and federal regulations.

Section 14. Transport Information

Controlling Regulation	UN/NA#:	Proper Shipping Name:	Technical Name:	Hazard Class:	Packing Group:
DOT	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A
TDG	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A

Note: N/A

Section 15. Regulatory Information

Inventory Status

United States (TSCA): All ingredients listed.
Canada (DSL/NDSL): All ingredients listed.

Federal Regulations

SARA Title III Rules

Sections 311/312 Hazard Classes

Fire Hazard: No
Reactive Hazard: No
Release of Pressure: No
Acute Health Hazard: Yes
Chronic Health Hazard: No

Other Sections

Component	Section 313 Toxic Chemical	Section 302 EHS TPQ	CERCLA RQ
2-Phosphono-1,2,4-butane tricarboxylic acid	N/A	N/A	N/A

Comments: None.

State Regulations

California Proposition 65: None known.

Special Regulations

Component	States
2-Phosphono-1,2,4-butane tricarboxylic acid	None.

International Regulations

Canada

WHMIS Classification: D2B (Toxic Material)

Controlled Product Regulations (CPR): This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Compliance Information

NSF: N/A

Food Regulations: N/A

KOSHER: This product has not been evaluated for Kosher approval.

FIFRA: N/A

Other: None

Comments: None.

Section 16. Other Information

HMIS Hazard Rating

Health:	1
Flammability:	0
Physical Hazard:	0
PPE:	X

Notes:

The PPE rating depends on circumstances of use. See Section 8 for recommended PPE.
The Hazardous Material Information System (HMIS) is a voluntary, subjective alpha-numeric symbolic system for recommending hazard risk and personal protection equipment information. It is a subjective rating system based on the evaluator's understanding of the chemical associated risks. The end-user must determine if the code is appropriate for their use.

Abbreviations

Abbreviation	Definition
<	Less Than
>	Greater Than
ACGIH	American Conference of Governmental Industrial Hygienists
EHS	Environmental Health and Safety Dept
N/A	Not Applicable
N/D	Not Determined
N/E	Not Established
OSHA	Occupational Health and Safety Dept
PEL	Personal Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weight Average
UNK	Unknown

Prepared by: Product Compliance Department; ProductCompliance@chemtreat.com

Revision Date: June 27, 2017

Disclaimer

SAFETY DATA SHEET

M31048 - ANSI - EN

Occidental Chemical Corporation
A subsidiary of Occidental Petroleum Corporation

ACL® 90 CHLORINATING TABLETS

SDS No.: M31048 **SDS Revision Date:** 11-May-2015

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Company Identification:	Occidental Chemical Corporation 5005 LBJ Freeway P.O. Box 809050 Dallas, TX 75380-9050 1-800-752-5151
24 Hour Emergency Telephone Number:	1-800-733-3665 or 1-972-404-3228 (USA); CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186
To Request an SDS:	MSDS@oxy.com or 1-972-404-3245
Customer Service:	1-800-752-5151 or 1-972-404-3700
Product Identifier:	**ACL® 90 CHLORINATING TABLETS**
Synonyms:	Trichloroisocyanuric acid, Trichloro-s-triazinetrione, 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione,1,3,5-trichloro-, Symclosene, TCCA
Product Use:	Algaecide, Microbiocide/microbiostat, Disinfectant, Sanitizer, Bactericide, Fungicide
Uses Advised Against:	None identified. This is a pesticide product, do not use it in a pesticide application that is not included on its label.

2. HAZARDS IDENTIFICATION

ACL® 90 CHLORINATING TABLETS

SDS No.: M31048 **SDS Revision Date:** 11-May-2015

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

****

EMERGENCY OVERVIEW:

Color: White
Physical State: Solid
Appearance: Tablet
Odor: Slight chlorine odor

Signal Word: **DANGER**

MAJOR HEALTH HAZARDS: CORROSIVE. CAUSES SERIOUS EYE DAMAGE. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. MAY BE FATAL IF INHALED. HARMFUL IF SWALLOWED.

PHYSICAL HAZARDS: OXIDIZING AGENT. Contact with water slowly liberates irritating and hazardous chlorine containing gases. Contamination with moisture, organic material, or other incompatible chemicals may start a reaction with generation of heat, liberation of hazardous gases, and possible fire and explosion. Contact with acids liberates toxic gas. Decomposes at temperatures above 464 °F with liberation of harmful gases. When ignited will burn with the evolution of chlorine and equally toxic gases. Do not get water inside container. Wet material may generate nitrogen trichloride, an explosion hazard.

AQUATIC TOXICITY: Very toxic to aquatic organisms. Very toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS: Do not get in eyes, on skin, or on clothing. Wear eye protection, face protection, protective gloves. Do not breathe dusts or mists. Use outdoors or in a well-ventilated area. Wash hands and affected skin thoroughly after handling. Do not eat, drink or smoke when using this product. Do not get water inside container, an explosion hazard. Oxidizer, keep separated from incompatible substances.

ADDITIONAL HAZARD INFORMATION: This material is corrosive. Product has strong buffering capability. Use dilution. May cause burns to moist skin if not promptly removed. There is no specific antidote.

****

GHS CLASSIFICATION:

GHS: PHYSICAL HAZARDS:	Oxidizing Solid - Cat. 2
GHS: CONTACT HAZARD - SKIN:	Category 1C - Causes severe skin burns and eye damage.
GHS: CONTACT HAZARD - EYE:	Category 1 - Causes serious eye damage
GHS: ACUTE TOXICITY - INHALATION:	Category 2 - Fatal if inhaled
GHS: ACUTE TOXICITY - ORAL:	Category 4 - Harmful if swallowed.
GHS: ACUTE TOXICITY - DERMAL:	Not acutely toxic by dermal exposure.
GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):	Category 3 - May cause respiratory tract irritation
GHS: CARCINOGENICITY:	This product is not classified as a carcinogen by NTP, IARC or OSHA.

GHS: HAZARDOUS TO AQUATIC ENVIRONMENT - ACUTE HAZARD:	Category 1 - Very toxic to aquatic life
GHS: HAZARDOUS TO AQUATIC ENVIRONMENT - CHRONIC HAZARD:	Category 1 - Very toxic to aquatic life with long lasting effects

UNKNOWN ACUTE TOXICITY: Not applicable. 100% of this product consists of ingredient(s) of known acute toxicity.

GHS SYMBOL: Corrosion, Skull and Crossbones, Exclamation mark, Oxidizer, Environmental hazard

GHS SIGNAL WORD: DANGER

GHS HAZARD STATEMENTS:

GHS - Physical Hazard Statement(s)
May intensify fire; oxidizer

GHS - Health Hazard Statement(s)
Causes severe skin burns and eye damage
Causes serious eye damage
Fatal if inhaled
Harmful if swallowed
May cause respiratory irritation

GHS - Environmental Hazard Statement(s)
Very toxic to aquatic life
Very toxic to aquatic life with long lasting effects

GHS - Precautionary Statement(s) - Prevention
Do not breathe dust, fume, gas, mist, vapors, or spray
In case of inadequate ventilation, wear respiratory protection
Wear protective gloves, protective clothing, eye, and face protection
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Keep away from heat
Keep/Store away from clothing and other combustible materials
Take any precaution to avoid mixing with combustibles
Avoid release to the environment

GHS - Precautionary Statement(s) - Response
IF INHALED: Remove person to fresh air and keep comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Specific treatment is urgent (see Section 4 of SDS or first aid information on this label)
IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower
Wash contaminated clothing before reuse
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Specific treatment (see First Aid information on product label and/or Section 4 of the SDS)
In case of fire: Use large amounts of water to extinguish
Collect spillage

GHS - Precautionary Statement(s) - Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up

GHS - Precautionary Statement(s) - Disposal
Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations.

Hazards Not Otherwise Classified (HNOC)
Damp or wet material may generate nitrogen trichloride, an explosion hazard
Contact with acids liberates toxic gas

See Section 11: TOXICOLOGICAL INFORMATION

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Trichloroisocyanuric acid, Trichloro-s-triazinetrione, 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione,1,3,5-trichloro-, Symclosene, TCCA

Component	Percent [%]	CAS Number
Trichloro-s-triazinetrione	98 - 100	87-90-1
Impurities	0 - 2	AT15610

4. FIRST AID MEASURES

INHALATION: If inhalation of dust occurs and adverse effects result, remove to uncontaminated area. Evaluate ABC's (is Airway constricted, is Breathing occurring, and is blood Circulating) and treat symptomatically. GET MEDICAL ATTENTION IMMEDIATELY. There is no specific antidote, treat symptomatically.

SKIN CONTACT: Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry and shoes. Wash contaminated areas with large amounts of water. GET MEDICAL ATTENTION IMMEDIATELY. Thoroughly clean and dry contaminated clothing before reuse.

EYE CONTACT: Immediately flush contaminated eyes with a directed stream of water for as long as possible. Remove contact lenses, if present, then continue rinsing. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION: If swallowed, do not induce vomiting. Give large amounts of water. If vomiting occurs spontaneously, keep airway clear. Give more water when vomiting stops. Never give anything by mouth to an unconscious or convulsive person. GET MEDICAL ATTENTION IMMEDIATELY.

Most Important Symptoms/Effects (Acute and Delayed) :.

Acute Symptoms/Effects: Listed below.
Inhalation (Breathing): Respiratory System Effects: Exposure to the solid product or to free chlorine evolving from the product may cause irritation, redness of upper and lower airways, coughing, laryngeospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. The pulmonary edema may develop several hours after a severe acute exposure.
Skin: Skin Corrosion. Exposure to solid along with moisture may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns.
Eye: Serious Eye Damage. Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to the internal contents of the eye.
Ingestion (Swallowing): Gastrointestinal Effects: Exposure by ingestion may cause irritation, nausea, and vomiting. May cause local tissue damage to esophagus and stomach such as burning, inflammation, local ulceration, and may cause gastrointestinal bleeding.

Delayed Symptoms/Effects:
- Repeated and prolonged skin contact may cause a dermatitis

Interaction with Other Chemicals Which Enhance Toxicity: None known.

Medical Conditions Aggravated by Exposure: May aggravate preexisting conditions such as: eye disorders that decrease tear production or have reduced integrity of the eye; skin disorders that compromise the integrity of the skin; and respiratory conditions including asthma and other breathing disorders.

Protection of First-Aiders: Protect yourself by avoiding contact with this material. Use personal protective equipment. Refer to Section 8 for specific personal protective equipment recommendations. Avoid contact with skin and eyes. Do not ingest. At minimum, treating personnel should utilize PPE sufficient for prevention of bloodborne pathogen transmission.

Notes to Physician: Treat as a corrosive substance. This material is more irritating to the skin and eyes in the presence of water. For prolonged exposures and significant exposures, consider delayed injury to exposed tissues. There is no antidote. Cyanuric acid is readily removed from the body via the renal system, and is not bioaccumulated. Treatment is supportive care. Follow normal parameters for airway, breathing, and circulation.

5. FIRE-FIGHTING MEASURES

Fire Hazard: Negligible fire hazard. If heated by outside source to temperatures above 240 C (464 F), this product will undergo decomposition with the evolution of noxious gases but no visible flame. Wet material may generate nitrogen trichloride, an explosion hazard.

Extinguishing Media: Flood with copious amounts of water. Do not use ABC fire extinguishers. Do not use dry chemicals, carbon dioxide, or halogenated extinguishing agents.

Fire Fighting: Consider evacuation of personnel located downwind. Keep unnecessary people away, isolate hazard area and deny entry. Move container from fire area if it can be done without risk. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Material which appears undamaged except for being damp on the outside, should be opened and inspected immediately. DO NOT attempt to reseal contaminated drums. Damp material should be neutralized to a non-oxidizing state. Contact OxyChem for instructions for handling and disposal of damp material.

Hazardous Combustion Products:	Chlorine, Nitrogen, Nitrogen trichloride, Cyanogen chloride, Oxides of carbon, Phosgene
Sensitivity to Mechanical Impact:	Not sensitive.
Sensitivity to Static Discharge:	Not sensitive.
Lower Flammability Level (air):	Not flammable
Upper Flammability Level (air):	Not flammable
Flash point:	Not applicable
Auto-ignition Temperature:	Not determined

GHS: PHYSICAL HAZARDS:
- Oxidizing Solid - Cat. 2

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:
Keep unnecessary and unprotected persons away. Isolate hazard area and deny entry. Do not get in eyes, on skin or on clothing. Do not breathe dust, fume, gas, mist, vapors, or spray. Wear appropriate personal protective equipment recommended in Section 8, Exposure Controls / Personal Protection, of the SDS. Keep away from heat, flame, and sources of ignition. Keep away from combustible materials.

Methods and Materials for Containment and Cleaning Up:
DO NOT add water to spilled material. DO NOT use floor sweeping compounds to clean up spills. Sweep and scoop spilled material into clean, dedicated equipment. Every attempt should be made to avoid mixing spilled material with other chemicals or debris when cleaning up. DO NOT attempt to reseal contaminated drums. DO NOT transport wet or damp material. Damp material should be neutralized to a non-oxidizing state. Contact OxyChem for instructions for handling and disposal of damp material.

Environmental Precautions:
This material is toxic to aquatic life. Keep out of water supplies and sewers. Releases should be reported, if required, to appropriate agencies.

7. HANDLING AND STORAGE

Precautions for Safe Handling:
Do not get in eyes, on skin, or on clothing. Avoid breathing vapors or dust when opening container. Avoid creation of dust. Wash thoroughly after handling. Wear personal protective equipment as described in Exposure Controls/Personal Protection (Section 8) of the SDS. NEVER add water to this product. Always add product to large quantities of water. Use clean, dry utensils. Do not add the product to any dispensing device containing residuals of other products. Keep away from heat, sparks, flame and other sources of ignition.

Safe Storage Conditions:
Store and handle in accordance with all current regulations and standards. (NFPA Oxidizer Class 1). Store away from open flames, and combustibles. Do not allow water to get in container. If liner is present, tie after each use. Keep container tightly closed and properly labeled. Store containers on pallets. Keep away from food, drink and animal feed. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet). Product has an indefinite shelf life if stored in original container in a cool, dry place.

Incompatibilities/ Materials to Avoid:
acids, ammonia, bases, floor sweeping compounds, calcium hypochlorite, reducing agents, organic solvents and compounds

GHS: PHYSICAL HAZARDS:
- Oxidizing Solid - Cat. 2

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Regulatory Exposure Limit(s): None. This product does not contain any components that have regulatory occupational exposure limits (OEL's) established.

OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit

NON-REGULATORY EXPOSURE LIMIT(S): Listed below for the product components that have advisory (non-regulatory) occupational exposure limits (OEL's) established.

- ***The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits, if shown, are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).***

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

OXY REL 8 hr TWA	0.5 mg/m^3 recommended Time Weighted Average - 8 hour (internal Occupational Exposure Limit)

Additional Advice: Chlorine and chlorine compounds may be found in slight amounts in the head space of containers of this product.

ENGINEERING CONTROLS: Use only in well-ventilated areas. Provide local exhaust ventilation where dust or mist may be generated. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Wear safety glasses with side-shields. Wear chemical safety goggles with a face-shield to protect against eye and skin contact when appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear protective clothing to minimize skin contact. When potential for contact with dry material exists, wear disposable coveralls suitable for dust exposure, such as Tyvek®. Contaminated clothing should be removed and laundered before reuse.

Hand Protection: Wear appropriate chemical resistant gloves. Consult a glove manufacturer for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types: Butyl rubber, Natural rubber, Neoprene, Nitrile, Polyvinyl chloride (PVC), Tyvek®

Respiratory Protection: A NIOSH approved respirator with N95 (dust, fume, mist) cartridges may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. The added protection of a full face-piece respirator is required when visible dusty conditions are encountered and eye irritation may occur. Acid gas cartridges with N95 filters are required when fumes or vapor may be generated. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Appearance:	Tablet
Color:	White
Odor:	Slight chlorine odor

Odor Threshold [ppm]:	Not Available.
Molecular Weight:	232.4
Molecular Formula:	C3N303Cl3
Decomposition Temperature:	478 °F (248 °C)
Boiling Point/Range:	Not applicable
Freezing Point/Range:	Not applicable.
Melting Point/Range:	478 °F (248 °C)
Vapor Pressure:	<0.002 Pa @ 20 °C
Vapor Density (air=1):	Not applicable
Relative Density/Specific Gravity (water=1):	No data available
Density:	2.1 g/mL @ 25 °C
Bulk Density:	63 - 66 lbs/ft3 (loose) lbs/ft3 (loose)
Water Solubility:	0.98 mg/100 g @ 20 °C
pH:	2.9 - 3.5 @ 25 °C (1% solution)
Volatility:	Not applicable
Evaporation Rate (ether=1):	Not applicable
Partition Coefficient (n-octanol/water):	No data available
Flash point:	Not applicable
Flammability (solid, gas):	Not flammable
Lower Flammability Level (air):	Not flammable
Upper Flammability Level (air):	Not flammable
Auto-ignition Temperature:	Not determined
Viscosity:	Not applicable

10. STABILITY AND REACTIVITY

Reactivity: Not reactive under normal temperatures and pressures.

Chemical Stability: Stable at normal temperatures and pressures.

Possibility of Hazardous Reactions:
Do not get water inside container. Wet material may generate nitrogen trichloride, an explosion hazard. Avoid contact with easily oxidizable organic material. Contact with acids liberates toxic gas.

Conditions to Avoid:
(e.g., static discharge, shock, or vibration) -. None known.

Incompatibilities/ Materials to Avoid:
acids. ammonia. bases. floor sweeping compounds. calcium hypochlorite. reducing agents. organic solvents and compounds.

Hazardous Decomposition Products: chlorine, nitrogen, nitrogen trichloride, cyanogen chloride, oxides of carbon, phosgene

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

IRRITATION DATA: PRIMARY SKIN IRRITATION: Severe Irritation, Corrosive (rabbit, 24 hr)
PRIMARY EYE IRRITATION: Severe Irritation, Corrosive (rabbit, 24 hr)

TOXICITY DATA:

PRODUCT TOXICITY DATA: ACL® 90 CHLORINATING TABLETS

LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
809 mg/kg (Rat)	>2000 mg/kg (Rabbit)	>0.09 - <0.29 mg/L (4 hr - Rat)

COMPONENT TOXICITY DATA:
Note: The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

Component	LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
Trichloro-s-triazinetrione 87-90-1	406 mg/kg (Rat)	2000 mg/kg (Rabbit)	50 mg/L (1 hr-Rat)

****

POTENTIAL HEALTH EFFECTS:

Eye contact: Eye exposures may cause burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to the internal contents of eye.

Skin contact: Exposure to solid along with moisture may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns. Dry material is less irritating than wet material. This material is not a skin sensitizer based on studies with guinea pigs.

Inhalation: This material in the form as sold is not expected to produce respiratory effects. Particles of respirable size are generally not encountered. The respirable fraction is typically less than 0.1% by weight for the granular and extra granular grades. If ground or otherwise in a powdered form, effects similar to a corrosive substance may occur. Exposure to the solid product or to free chlorine evolving from the product may cause irritation, redness of upper and lower airways, coughing, laryngeospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. The pulmonary edema may develop several hours after a severe acute exposure.

Ingestion: Exposure by ingestion may cause irritation, nausea, and vomiting. May cause local tissue damage to epiglottis, mucus membranes of the mouth, esophagus and stomach such as burning, inflammation, local ulceration, and may cause gastrointestinal bleeding.

Chronic Effects: None identified for the parent chemical. Based on animal studies, exposure to concentrations of monosodium cyanurate at the solubility limit may cause cardiovascular, kidney and urinary bladder effects.

SIGNS AND SYMPTOMS OF EXPOSURE:

Inhalation (Breathing): Respiratory System Effects: Exposure to the solid product or to free chlorine evolving from the product may cause irritation, redness of upper and lower airways, coughing, laryngeospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. The pulmonary edema may develop several hours after a severe acute exposure.

Skin: Skin Corrosion. Exposure to solid along with moisture may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns.

Eye: Serious Eye Damage. Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to the internal contents of the eye.

Ingestion (Swallowing): Gastrointestinal Effects: Exposure by ingestion may cause irritation, nausea, and vomiting. May cause local tissue damage to esophagus and stomach such as burning, inflammation, local ulceration, and may cause gastrointestinal bleeding.

TOXICITY:

Monosodium cyanurate was administered via drinking water to rats for 104 weeks at concentrations of 0, 400, 1200, 2400, and 5375 ppm (solubility limit). No compound-related effects on body weights, clinical signs of toxicity or food or water consumption were noted during the study. An increased incidence of gross lesions in the urinary tract, calculi in the kidney and lesions in the heart were observed in males receiving the highest dose level of 5375 ppm (solubility limit). The health effects seen in this study were due to precipitation of the test substance in the urinary tract when the test substance was fed at the solubility limit. Adverse health effects were not seen at lower doses where precipitation did not occur.

Interaction with Other Chemicals Which Enhance Toxicity: None known.

****

GHS HEALTH HAZARDS:

GHS: ACUTE TOXICITY - ORAL: Category 4 - Harmful if swallowed.

GHS: ACUTE TOXICITY - DERMAL: Not acutely toxic by dermal exposure.

GHS: ACUTE TOXICITY - INHALATION: Category 2 - Fatal if inhaled.

Skin Absorbent / Dermal Route? No.

GHS: CONTACT HAZARD - SKIN: Category 1C - Causes severe skin burns and eye damage

GHS: CONTACT HAZARD - EYE: Category 1 - Causes serious eye damage

GHS: CARCINOGENICITY:

This product is not classified as a carcinogen by NTP, IARC or OSHA.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):
Category 3 - Respiratory Tract Irritation

MUTAGENIC DATA:
Not classified as a mutagen per GHS criteria. Not mutagenic in 5 Salmonella strains and 1 E. coli strain with or without mammalian microsomal activation.

REPRODUCTIVE TOXICITY:
Not classified as a reproductive toxin per GHS criteria. There are no known or recorded effects on reproductive function or fetal development.

OTHER HAZARDS:
Contact with acids liberates toxic gas.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

Fish Toxicity:
LC50 Bluegill sunfish: 0.23 - 0.40 mg/l (96 hr.)
LC50 Rainbow trout: 0.24 - 0.37 mg/l (96 hr.)

Invertebrate Toxicity:
LC50 Water flea: 0.17 - 0.80 mg/L (48 hr.)

Algae Toxicity:
LC50 Green algae: <0.5 mg/L (3 hour)

Other Toxicity:
LD50 Mallard duck (oral): 1021 - 1631 mg/kg
LD50 N. Bobwhite Quail (oral): 1638 mg/kg
LD50 Mallard duck (diet): >10,000 ppm
LD50 N. Bobwhite Quail (diet): >7422 ppm

FATE AND TRANSPORT:

BIODEGRADATION: This material is subject to hydrolysis
Cyanuric acid produced by hydrolysis is biodegradable

PERSISTENCE: This material is believed not to persist in the environment
Free available chlorine is rapidly consumed by reaction with organic and inorganic materials to produce chloride ion
The stable degradation products are chloride ion and cyanuric acid

BIOCONCENTRATION: This material hydrolyses in water liberating free available chlorine and cyanuric acid. These products are not bioaccumulative.

ADDITIONAL ECOLOGICAL INFORMATION: This product is very toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of appropriate regulatory requirements (e.g. permit and the permitting authority has been notified in writing prior to discharge). Do not discharge effluent containing this product into sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your local or regional regulatory water boards and/or other appropriate regulatory offices.

13. DISPOSAL CONSIDERATIONS

Waste from material:
Use or reuse if possible. This material is a registered pesticide. May be subject to disposal regulations. Dispose in accordance with all applicable regulations. Do not put product, spilled product, or filled or partially filled containers into the trash or waste compactor. DO NOT transport wet or damp material. Damp material should be neutralized to a non-oxidizing state. Contact OxyChem for instructions for handling and disposal of damp material.

Container Management:
See product label for container disposal information. Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations.

14. TRANSPORT INFORMATION

LAND TRANSPORT

U.S. DOT 49 CFR 172.101:

Status: Regulated. For ground or air shipments only, non-bulk packages are regulated as oxidizers. Bulk Packaging or Shipment by Vessel: Regulated as follows:.

UN NUMBER:	UN2468
PROPER SHIPPING NAME:	Trichloroisocyanuric Acid, Dry, Marine Pollutant
HAZARD CLASS/ DIVISION:	5.1
PACKING GROUP:	II
LABELING REQUIREMENTS:	5.1, Marine Pollutant
MARINE POLLUTANT:	Trichloroisocyanuric Acid

* **NOTE:** When shipping by vessel or when shipping bulk quantities (greater than 882 pounds), add "MARINE POLLUTANT (Trichloroisocyanuric Acid)" at the end of basic shipping description, and display a Marine Pollutant label on the container.

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

Status: Regulated. For ground or air shipments only, non-bulk packages are regulated as oxidizers. Bulk Packaging or Shipment by Vessel: Regulated as follows:.

*** NOTE:** When shipping by vessel or when shipping bulk quantities (greater than 882 pounds), add "MARINE POLLUTANT (Trichloroisocyanuric Acid)" at the end of basic shipping description, and display a Marine Pollutant label on the container.

UN NUMBER:	UN2468
SHIPPING NAME:	Trichloroisocyanuric Acid, Dry, Marine Pollutant
CLASS OR DIVISION:	5.1
PACKING/RISK GROUP:	II
LABELING REQUIREMENTS:	5.1, Marine Pollutant
CAN. MARINE POLLUTANT:	Trichloroisocyanuric Acid

MARITIME TRANSPORT (IMO / IMDG) :

*** NOTE:** When shipping by vessel or when shipping bulk quantities (greater than 882 pounds), add "MARINE POLLUTANT (Trichloroisocyanuric Acid)" at the end of basic shipping description, and display a Marine Pollutant label on the container.

Status - IMO / IMDG: Shipment by Vessel: Regulated

UN NUMBER:	UN2468
PROPER SHIPPING NAME:	Trichloroisocyanuric Acid, Dry, Marine Pollutant
HAZARD CLASS / DIVISION:	5.1
Packing Group:	II
LABELING REQUIREMENTS:	5.1, Marine Pollutant
MARINE POLLUTANT:	Trichloroisocyanuric Acid

15. REGULATORY INFORMATION

U.S. REGULATIONS

OSHA REGULATORY STATUS:
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
Not regulated.

SARA EHS Chemical (40 CFR 355.30)
Not regulated

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):
Fire Hazard, Reactive Hazard, Acute Health Hazard

EPCRA SECTION 313 (40 CFR 372.65):
Not regulated.

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):
Not regulated

FIFRA REGULATIONS: Registered pesticide under 40 CFR 152.10, Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), EPA Reg. No. 935-79 (ACL® 90 Chlorinating Tablets)

FIFRA LABELING REQUIREMENTS: - This chemical is a pesticide product registered by the United States Environmental Protection Agency (EPA) and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.
- FIFRA Signal Word - DANGER
- Corrosive
- Causes irreversible eye damage and skin burns
- May be fatal if inhaled
- Harmful if swallowed or absorbed through skin
- This pesticide is toxic to fish and aquatic organisms
- Strong oxidizing agent
- Contact with water slowly liberates irritating and hazardous chlorine containing gases
- Decomposes at temperatures above 437 °F (225 °C) with liberation of harmful gases
- When ignited will burn with the evolution of chlorine and equally toxic gases
- NEVER add water to product
- Always add product to large quantities of water
- Use only clean and dry utensils
- DO NOT add this product to any dispensing device containing remnants of any other product
- Such use may cause a violent reaction leading to fire or explosion
- Contamination with moisture, organic material, or other incompatible chemicals may start a reaction with generation of heat, liberation of hazardous gases, and possible fire and explosion

NATIONAL INVENTORY STATUS

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA): All components are listed or exempt.

TSCA 12(b): This product is not subject to export notification.

Canadian Chemical Inventory: All components of this product are listed on either the DSL or the NDSL.

STATE REGULATIONS

California Proposition 65:
This product and its ingredients are not listed, but it may contain impurities/trace elements known to the State of California to cause cancer or reproductive toxicity as listed under Proposition 65 State Drinking Water and Toxic Enforcement Act. For additional information, contact OxyChem Technical Services at 1-800-733-1165.

Component	California Proposition 65 Cancer WARNING:	California Proposition 65 CRT List - Male reproductive toxin:	California Proposition 65 CRT List - Female reproductive toxin:	Massachusetts Right to Know Hazardous Substance List	New Jersey Right to Know Hazardous Substance List	New Jersey Special Health Hazards Substance List
Trichloro-s-triazinetrione 87-90-1	Not Listed	Not Listed	Not Listed	Listed	1892	Not Listed

Component	New Jersey - Environmental Hazardous Substance List	Pennsylvania Right to Know Hazardous Substance List	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Environmental Hazard List	Rhode Island Right to Know Hazardous Substance List
Trichloro-s-triazinetrione 87-90-1	Not Listed	Listed	Not Listed	Not Listed	Listed

CANADIAN REGULATIONS

• This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations

WHMIS - Classifications of Substances:

• Material is regulated as a pesticide, therefore is not regulated under WHMIS

PCP Registration:

- This product is registered as a pesticide in Canada under PCP Reg No. 22097

16. OTHER INFORMATION

Prepared by: OxyChem Corporate HESS - Product Stewardship

Rev. Date: 11-May-2015

HMIS: (SCALE 0-4) (Rated using National Paint & Coatings Association HMIS: Rating Instructions, 2nd Edition)

Health Rating: 3 **Flammability Rating:** 0 **Reactivity Rating:** 2

NFPA 704 - Hazard Identification Ratings (SCALE 0-4)

Health Rating: 2 **Flammability:** 0 **Reactivity Rating:** 2

ACL® 90 CHLORINATING TABLETS

SDS No.: M31048 **SDS Revision Date:** 11-May-2015

Reason for Revision:
• Changed the SDS format to meet the GHS requirements of the revised 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200}
• Updated the (M)SDS header
• Product Identifier has been added or updated: SEE SECTION 1
• Updated Uses Advised Against information: SEE SECTION 1
• Revised Hazard(s) Identification information: SEE SECTION 2
• Emergency Overview was revised: SEE SECTION 2
• Added GHS Information: SEE SECTION 2
• Updated First Aid Measures: SEE SECTION 4
• Updated 24 Hour Emergency Telephone Number: SEE SECTION 1
• Modified Fire Fighting Measure Recommendations: SEE SECTION 5
• Revised Accidental Release Measures: SEE SECTION 6
• Revised Handling and Storage Recommendations: SEE SECTION 7
• Physical State information has been revised: SEE SECTIONS 2 and 9
• Stability and Reactivity recommendations: SEE SECTION 10
• Toxicological Information has been revised: SEE SECTION 11
• Updated Disposal Considerations. SEE SECTION 13
• Updated FIFRA Regulations: SEE SECTION 15
• Added SDS Revision Date: SEE SECTION 16

IMPORTANT:
The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESSED OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal and other factors that may involve other or additional legal, environmental, safety or performance considerations, and OxyChem assumes no liability whatsoever for the use of or reliance upon this information. While our technical personnel will be happy to respond to questions, safe handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any Federal, State, local or foreign laws

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees

End of Safety Data Sheet

Section 1 Chemical Product and Company Identification

ward's science

5100 West Henrietta Rd
PO Box 92912
Rochester, NY 14692-9012
Tel: (800) 962-2660

Boreal Science
399 Vansickle Road
St. Catherines, Ontario
L2S 3T4 Canada
Tel: (800) 387-9393

CHEMTREC 24 Hour Emergency USA
Phone Number (800) 424-9300
1 703-741-5500 (from anywhere in the world).
For laboratory and industrial use only.
Not for drug, food or household use.

Product	**SODIUM BICARBONATE, ANHYDROUS**
Synonyms	Baking Soda / Sodium Hydrogen Carbonate / Carbonic Acid Sodium (1:1)

Section 2 Hazards Identification

This substance or mixture has not been classified as hazardous according to the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals.

Signal word: Not classified
Pictograms: Not classified
Target organs: None known

GHS Classification: Not classified

GHS Label information: Hazard statement(s): Not classified

Precautionary statement(s):
Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Get medical attention if you feel unwell.

Hazards not otherwise classified:
Health hazards not otherwise classified (HHNOC) - Not Known
Physical hazards not otherwise classified (PHNOC) - Not Known

Section 3 Composition / Information on Ingredients

Chemical Name	CAS #	%	EINECS
Sodium bicarbonate	144-55-8	100%	205-633-8

Section 4 First Aid Measures

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN ABSORPTION: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

Suitable Extinguishing Media: Use any media suitable for extinguishing supporting fire.

Protective Actions for Fire-fighters: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

Specific Hazards: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This material is commonly used to extinguish fires.

Section 6 Accidental Release Measures

Personal Precautions: Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

Environmental Precautions: Avoid runoff into storm sewers and ditches which lead to waterways.

Containment and Cleanup: Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

Section 7 Handling & Storage

Precautions for Safe Handling: Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

Conditions for Safe Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Store away from acids.

Section 8 Exposure Controls / Personal Protection

Exposure Limits:

Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
Sodium bicarbonate	None established	None established	None established

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHA-approved respirator.

Section 9 Physical & Chemical Properties

Appearance: Solid, white crystalline powder.
Odor: No odor.
Odor threshold: Data not available.
pH: 8.2 (1% solution)
Melting / Freezing point: Data not available
Boiling point: Decomposes
Flash point: Non combustible

Evaporation rate (= 1): Data not available
Flammability (solid/gas): Data not available.
Explosion limits: Lower / Upper: Data not available
Vapor pressure (mm Hg): Negligible
Vapor density (Air = 1): Data not available
Relative density (Specific gravity): 2.16 @ 20°C
Solubility(ies): 8.6 g/100 ml water at 20°C

Partition coefficient: Data not available
Auto-ignition temperature: Data not available
Decomposition temperature: Data not available
Viscosity: Data not available.
Molecular formula: $NaHCO_3$
Molecular weight: 84.01

Section 10 Stability & Reactivity

Chemical stability: Stable
Hazardous polymerization: Will not occur.
Conditions to avoid: High temperature causes decomposition to sodium carbonate, water and carbon dioxide.

Incompatible materials: Reacts with acids to yield acid salts, water and carbon dioxide.

Hazardous decomposition products: Gaseous carbon dioxide.

Section 11 Toxicological Information

Acute toxicity: Oral-rat LD50: 4220-4400 mg/kg
Skin corrosion/irritation: Skin-rabbit - not irritating
Serious eye damage/irritation: Eye-rabbit - not irritating
Respiratory or skin sensitization: Non sensitizing
Germ cell mutagenicity: Data not available
Carcinogenity: Data not available
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity: Data not available
STOT-single exposure: Data not available
STOT-repeated exposure: Data not available
Aspiration hazard: Data not available
Potential health effects:
Inhalation: Excessive dust may irritate respiratory tract.
Ingestion: Ingestion may cause gastrointestinal disturbance if ingested.
Skin: No hazard known.
Eyes: Contact with eyes may cause very slight irritation.
Signs and symptoms of exposure: See Potential health effects above.
Additional information: RTECS #: VZ0950000

Section 12 Ecological Information

Toxicity to fish: Gambusia affinis (fish, freshwater) LC50: 7550 mg/l/24 hours
Toxicity to daphnia and other aquatic invertebrates: Daphnia magna (Crustacea) EC50: 2350 mg/l/48 hours
Toxicity to algae: Nitcheria linearis (Algae) LC50: 650 mg/l/5 day
Persistence and degradability: No data available
Bioaccumulative potential: No data available
Mobility in soil: No data available
PBT and vPvB assessment: No data available
Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

Section 14 Transport Information (US DOT / CANADA TDG)

UN/NA number: Not applicable
Shipping name: Not Regulated
Hazard class: Not applicable
Packing group: Not applicable
Reportable Quantity: No
Marine pollutant: No
Exceptions: Not applicable
2016 ERG Guide # Not applicable

Section 15 Regulatory Information

A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.

Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	CA Prop 65
Sodium bicarbonate	Listed	Not listed	Not listed	Listed	Not listed	This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

Section 16 Other Information

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

Revision Date: March 9, 2018 **Supercedes:** December 15, 2016

SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

Product Name:	ChemTreat BL1285
Product Use:	Boiler Water Treatment
Supplier's Name:	ChemTreat, Inc.
Emergency Telephone Number:	(800)424-9300 (Toll Free)
Address (Corporate Headquarters):	5640 Cox Road Glen Allen, VA 23060
Telephone Number for Information:	(800)648-4579
Date of SDS:	20 March 2017
Revision Date:	20 March 2017
Revision Number:	17032001AN

Section 2. Hazard(s) Identification

Signal Word: **WARNING**

GHS Classification(s):

Eye damage/irritation – Category 2b
Skin corrosion/irritation – Category 2
Acute Toxicity Inhalation – Category 4
Acute Toxicity Oral – Category 4

Hazard Statement(s):

H320 Causes eye irritation.
H315 Causes skin irritation.
H332 Harmful if inhaled.
H302 Harmful if swallowed.

Precautionary Statement(s):

Prevention:

P264 Wash thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P270 Do not eat, drink, or smoke when using this product.

Response: None.

Storage: None.

Disposal: None.

System of Classification Used: The SDS Conforms to the GHS Standards for hazard communication as implemented.

Hazards Not Otherwise Classified: None.

Section 3. Composition/Hazardous Ingredients

Component	CAS Registry #	Wt.%
Diethylhydroxylamine	3710-84-7	5 - 10

Comments If chemical identity and/or exact percentage of composition has been withheld, this information is considered to be a trade secret.

Section 4. First Aid Measures

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.

Eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Skin: Wash with plenty of soap and water. Take off contaminated clothing and wash before re-use. If skin irritation occurs, seek medical advice/attention.

Ingestion: DO NOT INDUCE VOMITING. Rinse mouth. Call a POISON CENTER or doctor/physician.

Most Important Symptoms: N/D

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary: N/A

Section 5. Fire Fighting Measures

Flammability of the Product:	Negative results obtained in sustained combustion test.
Suitable Extinguishing Media:	Use extinguishing media suitable to surrounding fire.
Specific Hazards Arising from the Chemical:	Vapour is heavier than air. Product emits toxic gases or fumes under fire conditions.
Protective Equipment:	If product is involved in a fire, wear full protective clothing including a positive-pressure, NIOSH approved, self-contained breathing apparatus.

Section 6. Accidental Release Measures

Personal Precautions:	Wear a self-contained breathing apparatus and appropriate Personal Protective Equipment (PPE).
Environmental Precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.
Methods for Cleaning up:	Contain and recover liquid when possible. Flush spill area with water spray.
Other Statements:	None.

Section 7. Handling and Storage

Handling:	Wear appropriate Personal Protective Equipment (PPE) when handling this product. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Do not ingest. Avoid breathing vapours, mist or dust.
Storage:	Store away from incompatible materials (see Section 10). Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations. For Industrial use only. Protect from heat and sources of ignition. Store above Freeze Point.

Section 8. Exposure Controls/Personal Protection

Exposure Limits

Component	Source	Exposure Limits
Diethylhydroxylamine	N/E	N/E

Engineering Controls: Use only with adequate ventilation. The use of local ventilation is recommended to control emission near the source.

Personal Protection

Eyes: Wear chemical splash goggles or safety glasses with full-face shield. Maintain eyewash fountain in work area.

Skin: Maintain quick-drench facilities in work area. Wear butyl rubber or neoprene gloves. Wash them after each use and replace as necessary. If conditions warrant, wear protective clothing such as boots, aprons, and coveralls to prevent skin contact.

Respiratory: If misting occurs, use NIOSH approved organic vapour/acid gas dual cartridge respirator with a dust/mist prefilter.

Section 9. Physical and Chemical Properties

Physical State and Appearance:	Liquid, Colorless, Clear
Specific Gravity:	0.999 @ 20°C
pH:	11.1 @ 20°C, 100.0%
Freezing Point:	0°C
Flash Point:	71.1°C
Odour:	Mild
Melting Point:	N/A
Initial Boiling Point and Boiling Range:	N/D
Solubility in Water:	Complete
Evaporation Rate:	N/D
Vapour Density:	N/D
Molecular Weight:	N/D
Viscosity:	<100 CPS @ 20°C
Flammability (solid, gas):	N/D
Flammable Limits:	N/A
Autoignition Temperature:	N/D
Density:	1.00 KG/L
Vapour Pressure:	<18 mmHg @ 20C

% VOC:	8.5
Odour Threshold	N/D
n-octanol Partition Coefficient	N/D
Decomposition Temperature	N/D

Section 10. Stability and Reactivity

Chemical Stability: Stable at normal temperatures and pressures.

Incompatibility with Various Substances: Strong oxidizers, Strong acids.

Hazardous Decomposition Products: Oxides of carbon, Oxides of nitrogen.

Possibility of Hazardous Reactions: None known.

Reactivity: N/D

Conditions To Avoid: N/D

Section 11. Toxicological Information

Acute Toxicity

Chemical Name	Exposure	Type of Effect	Concentration	Species
Diethylhydroxylamine	Oral	LD50	2190 MG/KG	Rat
	Dermal	LD50	1300 MG/KG	Rabbit

Carcinogenicity Category

Component	Source	Code	Brief Description
Diethylhydroxylamine	N/E	N/E	N/E

Likely Routes of Exposure: N/D

Symptoms

Inhalation: N/D

Eye Contact: N/D

Skin Contact: N/D

Ingestion: N/D

Skin Corrosion/Irritation: N/D

Serious Eye Damage/Eye Irritation: N/D

Sensitization: N/D

Germ Cell Mutagenicity: N/D

Reproductive/Developmental Toxicity: N/D

Specific Target Organ Toxicity

Single Exposure: N/D

Repeated Exposure: N/D

Aspiration Hazard: N/D

Comments: None.

Section 12. Ecological Information

Ecotoxicity

Species	Duration	Type of Effect	Test Results
Daphnia magna	48h	EC50	1306 mg/l
Guppies	96h	LC50	1765 mg/l
Bacterial toxicity	16h	EC50	435 mg/l
Fathead Minnow	96h	LC50	>10000 mg/l

Persistence and Biodegradability: N/D

Bioaccumulative Potential: N/D

Mobility In Soil: N/D

Other Adverse Effects: N/D

Comments: None.

Section 13. Disposal Considerations

Incinerate or bury in approved landfill. There may be additional local or provincial requirements relating to the disposal of waste. Consult provincial or local regulations regarding the proper disposal of this material. Refer to Transportation of Dangerous Goods (T.D.G.) classifications.

Section 14. Transport Information

Controlling Regulation	UN/NA#:	Proper Shipping Name:	Technical Name:	Hazard Class:	Packing Group:
DOT	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A
IMDG	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A
ICAO	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A
SCT	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A
TDG	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A

Note: N/A

Section 15. Regulatory Information

Inventory Status

United States (TSCA): All ingredients listed.
Canada (DSL/NDSL): All ingredients listed.

Federal Regulations

SARA Title III Rules

Sections 311/312 Hazard Classes

Fire Hazard:	Yes
Reactive Hazard:	No
Release of Pressure:	No
Acute Health Hazard:	Yes
Chronic Health Hazard:	No

Other Sections

Component	Section 313 Toxic Chemical	Section 302 EHS TPQ	CERCLA RQ
Diethylhydroxylamine	N/A	N/A	N/A

Comments: None.

State Regulations

California Proposition 65: None known.

Special Regulations

Component	States
Diethylhydroxylamine	None.

International Regulations

Canada

WHMIS Classification: D2B (Toxic Material)
B3 (Combustible Liquid)

Controlled Product Regulations (CPR): This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Compliance Information

NSF:	N/A
Food Regulations:	N/A
KOSHER:	This product is certified by the Orthodox Union as kosher pareve. Only when prepared by the following ChemTreat facilities: Ashland, VA; Eldridge, IA; Nederland, TX.
FIFRA:	N/A
Other:	None

Comments: None.

Section 16. Other Information

HMIS Hazard Rating

Health:	1
Flammability:	2
Physical Hazard:	0
PPE:	X

Notes: The PPE rating depends on circumstances of use. See Section 8 for recommended PPE.
The Hazardous Material Information System (HMIS) is a voluntary, subjective alpha-numeric symbolic system for recommending hazard risk and personal protection equipment information. It is a subjective rating system based on the evaluator's understanding of the chemical associated risks. The end-user must determine if the code is appropriate for their use.

Abbreviations

Abbreviation	Definition
<	Less Than
>	Greater Than
ACGIH	American Conference of Governmental Industrial Hygienists
EHS	Environmental Health and Safety Dept
N/A	Not Applicable
N/D	Not Determined
N/E	Not Established
OSHA	Occupational Health and Safety Dept
PEL	Personal Exposure Limit
STEL	Short Term Exposure Limit

Abbreviation	Definition
TLV	Threshold Limit Value
TWA	Time Weight Average
UNK	Unknown

Prepared by: Product Compliance Department; ProductCompliance@chemtreat.com

Revision Date: 20 March 2017

Disclaimer

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ChemTreat, Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will ChemTreat, Inc. be responsible for damages of any nature whatsoever resulting from the use or reliance upon information. No representation or warranties, either expressed or implied, of merchantability, fitness for a particular purpose, or of any other nature are made hereunder with respect to information or the product to which information refers.

SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

Product Name:	ChemTreat BL1353
Product Use:	Boiler Water Treatment
Supplier's Name:	ChemTreat, Inc.
Emergency Telephone Number:	(800)424-9300 (Toll Free)
Address (Corporate Headquarters):	5640 Cox Road Glen Allen, VA 23060
Telephone Number for Information:	(800)648-4579
Date of SDS:	March 7, 2017
Revision Date:	March 7, 2017
Revision Number:	17030701AN

Section 2. Hazard(s) Identification

Signal Word: **DANGER**

GHS Classification(s):

Skin corrosion/irritation - Category 1b
Eye damage/irritation - Category 1
Acute Toxicity Dermal - Category 4
Acute Toxicity Inhalation - Category 4
Acute Toxicity Oral - Category 4

Hazard Statement(s):

H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H312 Harmful in contact with skin.
H332 Harmful if inhaled.
H302 Harmful if swallowed.

Precautionary Statement(s):

Prevention:

P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink, or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response:	P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell P301 + 330 + 331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a POISON CENTER/doctor. P363 Wash contaminated clothing before reuse.
Storage:	P405 Store locked up.
Disposal:	P501 Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations.

System of Classification Used: Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Hazards Not Otherwise Classified: None.

Section 3. Composition/Hazardous Ingredients

Component	CAS Registry #	Wt.%
Sodium hydroxide	1310-73-2	1 - 5

Comments If chemical identity and/or exact percentage of composition has been withheld, this information is considered to be a trade secret.

Section 4. First Aid Measures

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.

Eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.

Skin:	Immediately remove/take off all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before re-use. Immediately call a poison center or doctor/physician.
Ingestion:	DO NOT INDUCE VOMITING. Rinse mouth. Call a POISON CENTER or doctor/physician.
Most Important Symptoms:	N/D
Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary:	N/A

Section 5. Fire Fighting Measures

Flammability of the Product:	Not flammable.
Suitable Extinguishing Media:	Use extinguishing media suitable to surrounding fire.
Specific Hazards Arising from the Chemical:	Use water spray to keep containers cool.
Protective Equipment:	If product is involved in a fire, wear full protective clothing including a positive-pressure, NIOSH approved, self-contained breathing apparatus.

Section 6. Accidental Release Measures

Personal Precautions:	Use appropriate Personal Protective Equipment (PPE).
Environmental Precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.
Methods for Cleaning up:	Contain and recover liquid when possible. Flush spill area with water spray.
Other Statements:	If RQ (Reportable Quantity) is exceeded, report to National Spill Response Office at 1-800-424-8802.

Section 7. Handling and Storage

Handling: Wear appropriate Personal Protective Equipment (PPE) when handling this product. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Do not ingest. Avoid breathing vapors, mist or dust.

Storage: Store away from incompatible materials (see Section 10). Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations. For Industrial use only.
Store above Freeze Point.

Section 8. Exposure Controls/Personal Protection

Exposure Limits

Component	Source	Exposure Limits
Sodium hydroxide	ACGIH TLV	2 mg/m³ Ceiling
	OSHA PEL	2 mg/m³ TWA

Engineering Controls: Use only with adequate ventilation. The use of local ventilation is recommended to control emission near the source.

Personal Protection

Eyes: Wear chemical splash goggles or safety glasses with full-face shield. Maintain eyewash fountain in work area.

Skin: Maintain quick-drench facilities in work area.
Wear butyl rubber or neoprene gloves. Wash them after each use and replace as necessary. If conditions warrant, wear protective clothing such as boots, aprons, and coveralls to prevent skin contact.

Respiratory: If misting occurs, use NIOSH approved organic vapor/acid gas dual cartridge respirator with a dust/mist prefilter in accordance with 29 CFR 1910.134.

Section 9. Physical and Chemical Properties

Physical State and Appearance:	Liquid, Light Straw, Clear
Specific Gravity:	1.063 @ 20°C
pH:	13.1 @ 20°C, 100.0%
Freezing Point:	28°F
Flash Point:	N/D
Odor:	Mild
Melting Point:	N/A
Initial Boiling Point and Boiling Range:	212°F
Solubility in Water:	Complete
Evaporation Rate:	<1
Vapor Density:	N/D
Molecular Weight:	N/D
Viscosity:	<100 CPS @ 20°C
Flammability (solid, gas):	N/D
Flammable Limits:	N/A
Autoignition Temperature:	N/A
Density:	8.87 LB/GA
Vapor Pressure:	<17.5
% VOC:	N/D
Odor Threshold	N/D
n-octanol Partition Coefficient	N/D
Decomposition Temperature	N/D

Section 10. Stability and Reactivity

Chemical Stability:	Stable at normal temperatures and pressures.
Incompatibility with Various Substances:	Acids, Strong oxidizers.
Hazardous Decomposition Products:	Oxides of carbon, Oxides of nitrogen.
Possibility of Hazardous Reactions:	None known.
Reactivity:	N/D
Conditions To Avoid:	N/D

Section 11. Toxicological Information

Acute Toxicity

Chemical Name	Exposure	Type of Effect	Concentration	Species
Sodium hydroxide	Oral	LD50	300 MG/KG	Rat
	Dermal	LD50	1350 MG/KG	Rabbit

Carcinogenicity Category

Component	Source	Code	Brief Description
Sodium hydroxide	N/E	N/E	N/E

Likely Routes of Exposure: N/D

Symptoms

Inhalation: N/D

Eye Contact: N/D

Skin Contact: N/D

Ingestion: N/D

Skin Corrosion/Irritation: N/D

Serious Eye Damage/Eye Irritation: N/D

Sensitization: N/D

Germ Cell Mutagenicity: N/D

Reproductive/Developmental Toxicity: N/D

Specific Target Organ Toxicity

Single Exposure: N/D

Repeated Exposure: N/D

Aspiration Hazard: N/D

Comments: None.

Section 12. Ecological Information

Ecotoxicity

Species	Duration	Type of Effect	Test Results
Sheepshead Minnow	96h	LC50	>1000 mg/l
Mysid Shrimp	48h	LC50	>1000 mg/l
Fathead Minnow	96h	LC50	>2000 mg/l
Ceriodaphnia dubia	48h	LC50	>2000 mg/l

Persistence and Biodegradability: N/D

Bioaccumulative Potential: N/D

Mobility In Soil: N/D

Other Adverse Effects: N/D

Comments: None.

Section 13. Disposal Considerations

Dispose of in accordance with local, state and federal regulations.
EPA corrosivity characteristic hazardous waste D002 when disposed of in the original product form.

Section 14. Transport Information

Controlling Regulation	UN/NA#:	Proper Shipping Name:	Technical Name:	Hazard Class:	Packing Group:
DOT	UN1824	SODIUM HYDROXIDE SOLUTION	N/A	8	PGII
TDG	UN1824	SODIUM HYDROXIDE SOLUTION	N/A	8	PGII

Note: N/A

Section 15. Regulatory Information

Inventory Status

United States (TSCA): All ingredients listed.
Canada (DSL/NDSL): All ingredients listed.

Federal Regulations

SARA Title III Rules

Sections 311/312 Hazard Classes

Fire Hazard: No
Reactive Hazard: No
Release of Pressure: No
Acute Health Hazard: Yes
Chronic Health Hazard: No

Other Sections

Component	Section 313 Toxic Chemical	Section 302 EHS TPQ	CERCLA RQ
Sodium hydroxide	N/A	N/A	1000

Comments: None.

State Regulations

California Proposition 65: None known.

Special Regulations

Component	States
Sodium hydroxide	MA, MN, NY, PA, WA

International Regulations

Canada

WHMIS Classification:	D2B (Toxic Material) E (Corrosive Material)
Controlled Product Regulations (CPR):	This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Compliance Information

NSF:	N/A
Food Regulations:	FDA: All ingredients in this product are authorized in 21 CFR 173.310 for use as "Boiler Water Additives" where the steam may contact food.
KOSHER:	This product is certified by the Orthodox Union as Kosher for Passover and year-round use. Only when prepared by the following ChemTreat facilities: Ashland, VA; Eldridge, IA; Nederland, TX; Vernon, CA.
FIFRA:	N/A
Other:	None

Comments: None.

Section 16. Other Information

HMIS Hazard Rating

Health:	3
Flammability:	0
Physical Hazard:	1
PPE:	X

Notes:

The PPE rating depends on circumstances of use. See Section 8 for recommended PPE.
The Hazardous Material Information System (HMIS) is a voluntary, subjective alpha-numeric symbolic system for recommending hazard risk and personal protection equipment information. It is a subjective rating system based on the evaluator's understanding of the chemical associated risks. The end-user must determine if the code is appropriate for their use.

Abbreviations

Abbreviation	Definition
<	Less Than
>	Greater Than
ACGIH	American Conference of Governmental Industrial Hygienists
EHS	Environmental Health and Safety Dept
N/A	Not Applicable
N/D	Not Determined
N/E	Not Established
OSHA	Occupational Health and Safety Dept
PEL	Personal Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weight Average
UNK	Unknown

Prepared by: Product Compliance Department; ProductCompliance@chemtreat.com

Revision Date: March 7, 2017

Disclaimer

SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

Product Name:	ChemTreat BL1559
Product Use:	Steam Line Treatment
Supplier's Name:	ChemTreat, Inc.
Emergency Telephone Number:	(800)424-9300 (Toll Free)
Address (Corporate Headquarters):	5640 Cox Road Glen Allen, VA 23060
Telephone Number for Information:	(800)648-4579
Date of SDS:	May 24, 2018
Revision Date:	May 24, 2018
Revision Number:	18052401AN

Section 2. Hazard(s) Identification

Signal Word: **DANGER**

GHS Classification(s):

Skin corrosion/irritation - Category 1b
Eye damage/irritation - Category 1
Acute Toxicity Oral - Category 4
Acute Toxicity Dermal - Category 4
Flammable Liquids - Category 4
Reproductive Toxicity - Category 2
Sensitization Skin - Category 1

Hazard Statement(s):

H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H312 Harmful in contact with skin.
H302 Harmful if swallowed.
H227 Combustible Liquid.
H317 May cause an allergic skin reaction.
H361 Suspected of damaging fertility or the unborn child.

Precautionary Statement(s):

Prevention:	P260 Do not breathe dust/fume/gas/mist/vapors/spray. P264 Wash thoroughly after handling. P270 Do not eat, drink, or smoke when using this product. P271 Use only outdoors or in a well−ventilated area. P280 Wear protective gloves/protective clothing/eye protection/face protection. P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261 Avoid breathing dust/fume/gas/mist/vapors/spray. P272 Contaminated work clothing should not be allowed out of the workplace. P201 Obtain special instructions before use. P263 Avoid contact during pregnancy and while nursing. P264 Wash thoroughly after handling.
Response:	P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell P301 + 330 + 331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a POISON CENTER/doctor. P363 Wash contaminated clothing before reuse. P370 + P378 In case of fire: Use extinguishing media suitable to surrounding fire to extinguish. P302 + P352 IF ON SKIN: Wash with plenty of soap and water. P333 + P313 If skin irritation or rash occurs: Get medical advice/attention. P308 + P313 IF exposed or concerned: Get medical advice/attention.
Storage:	P405 Store locked up. P403 Store in a well−ventilated place.
Disposal:	P501 Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations.

System of Classification Used: Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Hazards Not Otherwise Classified: None.

Section 3. Composition/Hazardous Ingredients

Component	CAS Registry #	Wt.%
Cyclohexylamine	108-91-8	10 - 30
3-Methoxypropylamine	5332-73-0	10 - 30

Comments If chemical identity and/or exact percentage of composition has been withheld, this information is considered to be a trade secret.

Section 4. First Aid Measures

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.

Eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.

Skin: Immediately remove/take off all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before re-use. Immediately call a poison center or doctor/physician.

Ingestion: DO NOT INDUCE VOMITING. Rinse mouth. Call a POISON CENTER or doctor/physician.

Most Important Symptoms: N/D

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary: N/A

Section 5. Fire Fighting Measures

Flammability of the Product:	Product does not sustain combustion as described in 49 CFR 173, Appendix H.
Suitable Extinguishing Media:	Use extinguishing media suitable to surrounding fire.
Specific Hazards Arising from the Chemical:	Product may emit toxic gases or fumes under fire conditions.
Protective Equipment:	If product is involved in a fire, wear full protective clothing including a positive-pressure, NIOSH approved, self-contained breathing apparatus.

Section 6. Accidental Release Measures

Personal Precautions:	Use appropriate Personal Protective Equipment (PPE).
Environmental Precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.
Methods for Cleaning up:	Contain and recover liquid when possible. Flush spill area with water spray.
Other Statements:	If RQ (Reportable Quantity) is exceeded, report to National Spill Response Office at 1-800-424-8802.

Section 7. Handling and Storage

Handling:	Wear appropriate Personal Protective Equipment (PPE) when handling this product. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Do not ingest. Avoid breathing vapors, mist or dust.
Storage:	Store away from incompatible materials (see Section 10). Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations. For Industrial use only. Protect from heat and sources of ignition. Store above Freeze Point.

Section 8. Exposure Controls/Personal Protection

Exposure Limits

Component	Source	Exposure Limits
Cyclohexylamine	ACGIH TLV	41 mg/m³ TWA
3-Methoxypropylamine	N/E	N/E

Engineering Controls: Use only with adequate ventilation. The use of local ventilation is recommended to control emission near the source.

Personal Protection

Eyes: Wear chemical splash goggles or safety glasses with full-face shield. Maintain eyewash fountain in work area.

Skin: Maintain quick-drench facilities in work area. Wear butyl rubber or neoprene gloves. Wash them after each use and replace as necessary. If conditions warrant, wear protective clothing such as boots, aprons, and coveralls to prevent skin contact.

Respiratory: If misting occurs, use NIOSH approved organic vapor/acid gas dual cartridge respirator with a dust/mist prefilter in accordance with 29 CFR 1910.134.

Section 9. Physical and Chemical Properties

Physical State and Appearance:	Liquid, Colorless, Clear
Specific Gravity:	0.964 @ 20°C
pH:	13.1 @ 20°C, 100.0%
Freezing Point:	<-9°F
Flash Point:	>140°F
Odor:	Strong
Melting Point:	N/A
Initial Boiling Point and Boiling Range:	212°F
Solubility in Water:	Miscible
Evaporation Rate:	N/D
Vapor Density:	N/D
Molecular Weight:	N/D
Viscosity:	<100 CPS @ 20°C
Flammability (solid, gas):	N/D
Flammable Limits:	N/A
Autoignition Temperature:	N/A

Density:	8.04 LB/GA
Vapor Pressure:	<18 mmHg @ 20C
% VOC:	50
Odor Threshold	N/D
n-octanol Partition Coefficient	N/D
Decomposition Temperature	N/D

Section 10. Stability and Reactivity

Chemical Stability: Stable at normal temperatures and pressures.

Incompatibility with Various Substances: Strong oxidizers, Acids.

Hazardous Decomposition Products: Oxides of carbon, Oxides of nitrogen.

Possibility of Hazardous Reactions: None known.

Reactivity: N/D

Conditions To Avoid: N/D

Section 11. Toxicological Information

Acute Toxicity

Chemical Name	Exposure	Type of Effect	Concentration	Species
Cyclohexylamine	Oral	LD50	156 MG/KG	Rat
	Dermal	LD50	277 MG/KG	Rabbit
3-Methoxypropylamine	Oral	LD50	6260 MG/KG	Rat
	Oral	LD50	0.69 G/KG	Rat
	Dermal	LD50	>2 G/KG	Rabbit
	Oral	LD50	690 MG/KG	Rat

Carcinogenicity Category

Component	Source	Code	Brief Description
Cyclohexylamine	ACGIH	TLV-A4	Not classifiable as a human carcinogen.
3-Methoxypropylamine	N/E	N/E	N/E

Likely Routes of Exposure: N/D

Symptoms

Inhalation: N/D

Eye Contact: N/D

Skin Contact: N/D

Ingestion: N/D

Skin Corrosion/Irritation: N/D

Serious Eye Damage/Eye Irritation: N/D

Sensitization: N/D

Germ Cell Mutagenicity: N/D

Reproductive/Developmental Toxicity: N/D

Specific Target Organ Toxicity

Single Exposure: N/D

Repeated Exposure: N/D

Aspiration Hazard: N/D

Comments: None.

Section 12. Ecological Information

Ecotoxicity

Species	Duration	Type of Effect	Test Results
Ceriodaphnia dubia	48h	LC50	519.63 mg/l
Daphnia pulex	48h	LC50	277 mg/l
Fathead Minnow	96h	LC50	659.75 mg/l
	48h	LC50	1025 mg/l
Mysid Shrimp	24h	LC50	406 mg/l
	48h	LC50	330 mg/l
Inland Silverside	24h	LC50	637 mg/l
	96h	LC50	470 mg/l

Persistence and Biodegradability: N/D

Bioaccumulative Potential: N/D

Mobility In Soil: N/D

Other Adverse Effects: N/D

Comments: None.

Section 13. Disposal Considerations

Dispose of in accordance with local, state and federal regulations.
EPA ignitibility characteristic hazardous waste D001 when disposed of in the original product form.
EPA corrosivity characteristic hazardous waste D002 when disposed of in the original product form.

Section 14. Transport Information

Controlling Regulation	UN/NA#:	Proper Shipping Name:	Technical Name:	Hazard Class:	Packing Group:
DOT	UN2735	AMINES, LIQUID, CORROSIVE, N.O.S.	(CYCLOHEXYLAMINE AND 3-METHOXYPROPYLAMINE)	8	PGII
IMDG	UN2735	AMINES, LIQUID, CORROSIVE, N.O.S.	(CYCLOHEXYLAMINE AND 3-METHOXYPROPYLAMINE)	8	PGII
ICAO	UN2735	AMINES, LIQUID, CORROSIVE, N.O.S.	(CYCLOHEXYLAMINE AND 3-METHOXYPROPYLAMINE)	8	PGII
SCT	UN2735	AMINES, LIQUID, CORROSIVE, N.O.S.	(CYCLOHEXYLAMINE AND 3-METHOXYPROPYLAMINE)	8	PGII
TDG	UN2735	AMINES, LIQUID, CORROSIVE, N.O.S.	(CYCLOHEXYLAMINE AND 3-METHOXYPROPYLAMINE)	8	PGII

Note: N/A

Section 15. Regulatory Information

Inventory Status

United States (TSCA): All ingredients listed.
Canada (DSL/NDSL): All ingredients listed.

Federal Regulations

SARA Title III Rules

Sections 311/312 Hazard Classes

Fire Hazard:	Yes
Reactive Hazard:	No
Release of Pressure:	No
Acute Health Hazard:	Yes
Chronic Health Hazard:	No

Other Sections

Component	Section 313 Toxic Chemical	Section 302 EHS TPQ	CERCLA RQ
Cyclohexylamine	N/A	10000	N/A
3-Methoxypropylamine	N/A	N/A	N/A

Comments: None.

State Regulations

California Proposition 65: None known.

Special Regulations

Component	States
Cyclohexylamine	MA, MN, NJ, NY, PA, WA
3-Methoxypropylamine	MN, PA

International Regulations

Canada

WHMIS Classification: D2B (Toxic Material)
E (Corrosive Material)

Controlled Product Regulations (CPR): This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Compliance Information

NSF:	N/A
Food Regulations:	N/A
KOSHER:	This product has not been evaluated for Kosher approval.
Halal:	This product has not been evaluated for Halal approval.
FIFRA:	N/A
Other:	None

Comments: None.

Section 16. Other Information

HMIS Hazard Rating

Health:	2
Flammability:	2
Physical Hazard:	0
PPE:	X

Notes: The PPE rating depends on circumstances of use. See Section 8 for recommended PPE.
The Hazardous Material Information System (HMIS) is a voluntary, subjective alpha-numeric symbolic system for recommending hazard risk and personal protection equipment information. It is a subjective rating system based on the evaluator's understanding of the chemical associated risks. The end-user must determine if the code is appropriate for their use.

Abbreviations

Abbreviation	Definition
<	Less Than
>	Greater Than
ACGIH	American Conference of Governmental Industrial Hygienists
EHS	Environmental Health and Safety Dept
N/A	Not Applicable
N/D	Not Determined
N/E	Not Established
OSHA	Occupational Health and Safety Dept
PEL	Personal Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value

Abbreviation	Definition
TWA	Time Weight Average
UNK	Unknown

Prepared by: Product Compliance Department; ProductCompliance@chemtreat.com

Revision Date: May 24, 2018

Disclaimer

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ChemTreat, Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will ChemTreat, Inc. be responsible for damages of any nature whatsoever resulting from the use or reliance upon information. No representation or warranties, either expressed or implied, of merchantability, fitness for a particular purpose, or of any other nature are made hereunder with respect to information or the product to which information refers.

SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

Product Name:	ChemTreat CL1429
Product Use:	Cooling Water Treatment
Supplier's Name:	ChemTreat, Inc.
Emergency Telephone Number:	(800)424-9300 (Toll Free)
Address (Corporate Headquarters):	5640 Cox Road Glen Allen, VA 23060
Telephone Number for Information:	(800)648-4579
Date of SDS:	March 7, 2017
Revision Date:	March 7, 2017
Revision Number:	17030701AN

Section 2. Hazard(s) Identification

Signal Word: **WARNING**

GHS Classification(s):
Eye damage/irritation – Category 2b
Skin corrosion/irritation – Category 2
Acute Toxicity Inhalation – Category 4
Acute Toxicity Oral – Category 4

Hazard Statement(s):
H320 Causes eye irritation.
H315 Causes skin irritation.
H332 Harmful if inhaled.
H302 Harmful if swallowed.

Precautionary Statement(s): No significant health risks are expected from exposures under normal conditions of use.

Prevention: None.

Response: None.

Storage: None.

Disposal: None.

System of Classification Used: Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Hazards Not Otherwise Classified: None.

Section 3. Composition/Hazardous Ingredients

Component	CAS Registry #	Wt.%
Potassium phosphate, dibasic	7758-11-4	3 - 7
Tetrapotassium pyrophosphate	7320-34-5	10 - 30

Comments If chemical identity and/or exact percentage of composition has been withheld, this information is considered to be a trade secret.

Section 4. First Aid Measures

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.

Eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Skin: Wash with plenty of soap and water. Take off contaminated clothing and wash before re-use. If skin irritation occurs, seek medical advice/attention.

Ingestion: DO NOT INDUCE VOMITING. Rinse mouth. Call a POISON CENTER or doctor/physician.

Most Important Symptoms: N/D

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary: N/A

Section 5. Fire Fighting Measures

Flammability of the Product:	Not flammable.
Suitable Extinguishing Media:	Use extinguishing media suitable to surrounding fire.
Specific Hazards Arising from the Chemical:	Product may emit toxic gases or fumes under fire conditions.
Protective Equipment:	If product is involved in a fire, wear full protective clothing including a positive-pressure, NIOSH approved, self-contained breathing apparatus.

Section 6. Accidental Release Measures

Personal Precautions:	Use appropriate Personal Protective Equipment (PPE).
Environmental Precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.
Methods for Cleaning up:	Contain and recover liquid when possible. Flush spill area with water spray.
Other Statements:	None.

Section 7. Handling and Storage

Handling:	Wear appropriate Personal Protective Equipment (PPE) when handling this product. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Do not ingest. Avoid breathing vapors, mist or dust.
Storage:	Store away from incompatible materials (see Section 10). Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations. For Industrial use only. Store above Freeze Point.

Section 8. Exposure Controls/Personal Protection

Exposure Limits

Component	Source	Exposure Limits
Potassium phosphate, dibasic	N/E	N/E
Tetrapotassium pyrophosphate	N/E	N/E

Engineering Controls: Use only with adequate ventilation. The use of local ventilation is recommended to control emission near the source.

Personal Protection

Eyes: Wear chemical splash goggles or safety glasses with full-face shield. Maintain eyewash fountain in work area.

Skin: Maintain quick-drench facilities in work area. Wear butyl rubber or neoprene gloves. Wash them after each use and replace as necessary. If conditions warrant, wear protective clothing such as boots, aprons, and coveralls to prevent skin contact.

Respiratory: If misting occurs, use NIOSH approved organic vapor/acid gas dual cartridge respirator with a dust/mist prefilter in accordance with 29 CFR 1910.134.

Section 9. Physical and Chemical Properties

Physical State and Appearance:	Liquid, Colorless, Clear
Specific Gravity:	1.235 @ 20°C
pH:	8.0 @ 20°C, 100.0%
Freezing Point:	25°F
Flash Point:	N/D
Odor:	Mild
Melting Point:	N/A
Initial Boiling Point and Boiling Range:	212°F
Solubility in Water:	Complete
Evaporation Rate:	N/D
Vapor Density:	N/D
Molecular Weight:	N/D
Viscosity:	N/A
Flammability (solid, gas):	N/D
Flammable Limits:	N/A
Autoignition Temperature:	N/A

Density:	10.30 LB/GA
Vapor Pressure:	<17.5
% VOC:	0
Odor Threshold	N/D
n-octanol Partition Coefficient	N/D
Decomposition Temperature	N/D

Section 10. Stability and Reactivity

Chemical Stability: Stable at normal temperatures and pressures.

Incompatibility with Various Substances: Strong oxidizers, Strong acids, Cationic polymers.

Hazardous Decomposition Products: Oxides of carbon, Oxides of nitrogen.

Possibility of Hazardous Reactions: None known.

Reactivity: N/D

Conditions To Avoid: N/D

Section 11. Toxicological Information

Acute Toxicity

Chemical Name	Exposure	Type of Effect	Concentration	Species
Tetrapotassium pyrophosphate	Oral	LD50	2980 MG/KG	Rat
	Dermal	LD50	>7940 MG/KG	Rabbit

Carcinogenicity Category

Component	Source	Code	Brief Description
Potassium phosphate, dibasic	N/E	N/E	N/E
Tetrapotassium pyrophosphate	N/E	N/E	N/E

Likely Routes of Exposure: N/D

Symptoms

Inhalation: N/D

Eye Contact: N/D

Skin Contact: N/D

Ingestion: N/D

Skin Corrosion/Irritation: N/D

Serious Eye Damage/Eye Irritation: N/D

Sensitization: N/D

Germ Cell Mutagenicity: N/D

Reproductive/Developmental Toxicity: N/D

Specific Target Organ Toxicity

Single Exposure: N/D

Repeated Exposure: N/D

Aspiration Hazard: N/D

Comments: None.

Section 12. Ecological Information

Ecotoxicity

Species	Duration	Type of Effect	Test Results
Fathead Minnow	96h	LC50	2106 mg/l
	7d	IC25	1077 mg/l
	7d	NOEC	1000 mg/l
	7d	LOEC	2000 mg/l
Ceriodaphnia dubia	48h	LC50	1105 mg/l
	7d	IC25	285 mg/l
	7d	NOEC	500 mg/l
	7d	LOEC	1000 mg/l
Mysid Shrimp	24h	LC50	1704 mg/l
	48h	LC50	1704 mg/l
Inland Silverside	24h	LC50	>2000 mg/l
	96h	LC50	>2000 mg/l

Persistence and Biodegradability:	N/D
Bioaccumulative Potential:	N/D
Mobility In Soil:	N/D
Other Adverse Effects:	N/D
Comments:	NOEC effect = Survival

Section 13. Disposal Considerations

Dispose of in accordance with local, state and federal regulations.
Not a RCRA-regulated hazardous waste when disposed in the original product form.

Section 14. Transport Information

Controlling Regulation	UN/NA#:	Proper Shipping Name:	Technical Name:	Hazard Class:	Packing Group:
DOT	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A
TDG	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A
ICAO	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A

Note: N/A

Section 15. Regulatory Information

Inventory Status

United States (TSCA):	All ingredients listed.
Canada (DSL/NDSL):	All ingredients listed.

Federal Regulations

SARA Title III Rules

Sections 311/312 Hazard Classes

Fire Hazard:	No
Reactive Hazard:	No
Release of Pressure:	No
Acute Health Hazard:	Yes
Chronic Health Hazard:	No

Other Sections

Component	Section 313 Toxic Chemical	Section 302 EHS TPQ	CERCLA RQ
Potassium phosphate, dibasic	N/A	N/A	N/A
Tetrapotassium pyrophosphate	N/A	N/A	N/A

Comments: None.

State Regulations

California Proposition 65: None known.

Special Regulations

Component	States
Potassium phosphate, dibasic	None.
Tetrapotassium pyrophosphate	None.

International Regulations

Canada

WHMIS Classification: D2B (Toxic Material)

Controlled Product Regulations (CPR): This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Compliance Information

NSF:	N/A
Food Regulations:	N/A
KOSHER:	This product has not been evaluated for Kosher approval.
FIFRA:	N/A
Other:	None

Comments: None.

Section 16. Other Information

HMIS Hazard Rating

Health:	1
Flammability:	0
Physical Hazard:	0
PPE:	X

Notes: The PPE rating depends on circumstances of use. See Section 8 for recommended PPE.
The Hazardous Material Information System (HMIS) is a voluntary, subjective alpha-numeric symbolic system for recommending hazard risk and personal protection equipment information. It is a subjective rating system based on the evaluator's understanding of the chemical associated risks. The end-user must determine if the code is appropriate for their use.

Abbreviations

Abbreviation	Definition
<	Less Than
>	Greater Than
ACGIH	American Conference of Governmental Industrial Hygienists
EHS	Environmental Health and Safety Dept
N/A	Not Applicable
N/D	Not Determined
N/E	Not Established
OSHA	Occupational Health and Safety Dept
PEL	Personal Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weight Average
UNK	Unknown

Prepared by: Product Compliance Department; ProductCompliance@chemtreat.com

Revision Date: March 7, 2017

Disclaimer

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SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

Product Name:	ChemTreat CL1492
Product Use:	Cooling Water Treatment
Supplier's Name:	ChemTreat, Inc.
Emergency Telephone Number:	(800)424-9300 (Toll Free)
Address (Corporate Headquarters):	5640 Cox Road Glen Allen, VA 23060
Telephone Number for Information:	(800)648-4579
Date of SDS:	May 9, 2016
Revision Date:	May 9, 2016
Revision Number:	16050901AN

Section 2. Hazard(s) Identification

Signal Word: DANGER

GHS Classification(s):

Skin corrosion/irritation - Category 1b
Eye damage/irritation - Category 1
Acute Toxicity Dermal - Category 4
Acute Toxicity Inhalation - Category 4
Acute Toxicity Oral - Category 4

Hazard Statement(s):

H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H312 Harmful in contact with skin.
H332 Harmful if inhaled.
H302 Harmful if swallowed.

Precautionary Statement(s):

Prevention:

P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink, or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P301 + 330 + 331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305 + P351 + P388 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P363 Wash contaminated clothing before reuse.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations.

System of Classification Used:

Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Hazards Not Otherwise Classified:

None.

Section 3. Composition/Hazardous Ingredients

Component	CAS Registry #	Wt.%
1-Hydroxyethylidene-1,1-diphosphonic acid, tetrapotassium salt	14860-53-8	1 - 5
Potassium hydroxide	1310-58-3	3 - 7
Tolyltriazole, sodium salt	64665-57-2	3 - 7

Comments

If chemical identity and/or exact percentage of composition has been withheld, this information is considered to be a trade secret.

Section 4. First Aid Measures

Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.
Eyes:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.
Skin:	Immediately remove/take off all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before re-use. Immediately call a poison center or doctor/physician.
Ingestion:	DO NOT INDUCE VOMITING. Rinse mouth. Call a POISON CENTER or doctor/physician.
Most Important Symptoms:	N/D
Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary:	N/A

Section 5. Fire Fighting Measures

Flammability of the Product:	Not flammable.
Suitable Extinguishing Media:	Use extinguishing media suitable to surrounding fire.
Specific Hazards Arising from the Chemical:	Product may emit toxic gases or fumes under fire conditions.
Protective Equipment:	If product is involved in a fire, wear full protective clothing including a positive-pressure, NIOSH approved, self-contained breathing apparatus.

Section 6. Accidental Release Measures

Personal Precautions: Use appropriate Personal Protective Equipment (PPE).

Environmental Precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.

Methods for Cleaning up: Contain and recover liquid when possible. Flush spill area with water spray.

Other Statements: If RQ (Reportable Quantity) is exceeded, report to National Spill Response Office at 1-800-424-8802.
Reportable Quantity of the product is 1951 Gal.

Section 7. Handling and Storage

Handling: Wear appropriate Personal Protective Equipment (PPE) when handling this product. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Do not ingest. Avoid breathing vapors, mist or dust.

Storage: Store away from incompatible materials (see Section 10). Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations. For Industrial use only.
Store above Freeze Point.

Section 8. Exposure Controls/Personal Protection

Exposure Limits

Component	Source	Exposure Limits
1-Hydroxyethylidene-1,1-diphosphonic acid, tetrapotassium salt	N/E	N/E
Potassium hydroxide	ACGIH TLV	2 mg/m³ Ceiling
Tolyltriazole, sodium salt	N/E	N/E

Engineering Controls: Use only with adequate ventilation. The use of local ventilation is recommended to control emission near the source.

Personal Protection

Eyes:	Wear chemical splash goggles or safety glasses with full−face shield. Maintain eyewash fountain in work area.
Skin:	Maintain quick−drench facilities in work area. Wear butyl rubber or neoprene gloves. Wash them after each use and replace as necessary. If conditions warrant, wear protective clothing such as boots, aprons, and coveralls to prevent skin contact.
Respiratory:	If misting occurs, use NIOSH approved organic vapor/acid gas dual cartridge respirator with a dust/mist prefilter in accordance with 29 CFR 1910.134.

Section 9. Physical and Chemical Properties

Physical State and Appearance:	Liquid, Yellow, Clear
Specific Gravity:	1.225 @ 20°C
pH:	13.5 @ 20°C, 100.0%
Freezing Point:	18°F
Flash Point:	N/D
Odor:	Mild
Melting Point:	N/A
Initial Boiling Point and Boiling Range:	212°F
Solubility in Water:	Complete
Evaporation Rate:	<1
Vapor Density:	N/D
Molecular Weight:	N/D
Viscosity:	N/D
Flammability (solid, gas):	N/D
Flammable Limits:	N/A
Autoignition Temperature:	N/A
Density:	10.22 LB/GA
Vapor Pressure:	<17.5
% VOC:	0
Odor Threshold	N/D
n−octanol Partition Coefficient	N/D
Decomposition Temperature	N/D

Section 10. Stability and Reactivity

Chemical Stability: Stable at normal temperatures and pressures.

Incompatibility with Various Substances: Acids, Strong oxidizers.

Hazardous Decomposition Products: Oxides of carbon, Oxides of nitrogen.

Possibility of Hazardous Reactions: None known.

Reactivity: N/D

Conditions To Avoid: N/D

Section 11. Toxicological Information

Acute Toxicity

Chemical Name	Exposure	Type of Effect	Concentration	Species
1-Hydroxyethylidene-1,1-diphosphonic acid, tetrapotassium salt	Oral	LD50	2400 MG/KG	Rat
	Dermal	LD50	>7940 MG/KG	Rabbit
Potassium hydroxide	Oral	LD50	365 MG/KG	Rat
Tolyltriazole, sodium salt	Oral	LD50	920 MG/KG	Rat
	Dermal	LD50	>2 G/KG	Rabbit

Carcinogenicity Category

Component	Source	Code	Brief Description
1-Hydroxyethylidene-1,1-diphosphonic acid, tetrapotassium salt	N/E	N/E	N/E
Potassium hydroxide	N/E	N/E	N/E
Tolyltriazole, sodium salt	N/E	N/E	N/E

Likely Routes of Exposure: N/D

Symptoms

Inhalation:	N/D
Eye Contact:	N/D
Skin Contact:	N/D
Ingestion:	N/D

Skin Corrosion/Irritation:	N/D
Serious Eye Damage/Eye Irritation:	N/D
Sensitization:	N/D
Germ Cell Mutagenicity:	N/D
Reproductive/Developmental Toxicity:	N/D

Specific Target Organ Toxicity

Single Exposure:	N/D
Repeated Exposure:	N/D

Aspiration Hazard:	N/D
Comments:	None.

Section 12. Ecological Information

Ecotoxicity

Species	Duration	Type of Effect	Test Results
N/D	N/D	N/D	N/D

Persistence and Biodegradability:	N/D
Bioaccumulative Potential:	N/D
Mobility In Soil:	N/D
Other Adverse Effects:	N/D

Comments: Not tested.

Section 13. Disposal Considerations

Dispose of in accordance with local, state and federal regulations.
EPA corrosivity characteristic hazardous waste D002 when disposed of in the original product form.

Section 14. Transport Information

Controlling Regulation	UN/NA#:	Proper Shipping Name:	Technical Name:	Hazard Class:	Packing Group:
DOT	UN1814	POTASSIUM HYDROXIDE SOLUTION	N/A	8	PGII
Over 1951 GA	UN1814	RQ POTASSIUM HYDROXIDE SOLUTION	N/A	8	PGII

Note: N/A

Section 15. Regulatory Information

Inventory Status

United States (TSCA): All ingredients listed.
Canada (DSL/NDSL): All ingredients listed.

Federal Regulations

SARA Title III Rules

Sections 311/312 Hazard Classes

Fire Hazard: No
Reactive Hazard: No
Release of Pressure: No
Acute Health Hazard: Yes
Chronic Health Hazard: No

Other Sections

Component	Section 313 Toxic Chemical	Section 302 EHS TPQ	CERCLA RQ
1-Hydroxyethylidene-1,1-diphosphonic acid, tetrapotassium salt	N/A	N/A	N/A
Potassium hydroxide	N/A	N/A	1000
Tolyltriazole, sodium salt	N/A	N/A	N/A

Comments: None.

State Regulations

California Proposition 65: None known.

Special Regulations

Component	States
1-Hydroxyethylidene-1,1-diphosphonic acid, tetrapotassium salt	None.
Potassium hydroxide	MA, MN, NY, PA, WA
Tolyltriazole, sodium salt	None.

International Regulations

Canada

WHMIS Classification: D2B (Toxic Material)
E (Corrosive Material)

Controlled Product Regulations (CPR): This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Compliance Information

NSF: N/A

Food Regulations: N/A

KOSHER: This product is certified by the Orthodox Union as kosher pareve.
Only when prepared by the following ChemTreat facilities: Ashland, VA; Eldridge, IA; Nederland, TX; Vernon, CA.

FIFRA: N/A

Other: None

Comments: None.

Section 16. Other Information

HMIS Hazard Rating

Health:	3
Flammability:	0
Physical Hazard:	1
PPE:	X

Notes: The PPE rating depends on circumstances of use. See Section 8 for recommended PPE.
The Hazardous Material Information System (HMIS) is a voluntary, subjective alpha-numeric symbolic system for recommending hazard risk and personal protection equipment information. It is a subjective rating system based on the evaluator's understanding of the chemical associated risks. The end-user must determine if the code is appropriate for their use.

Abbreviations

Abbreviation	Definition
<	Less Than
>	Greater Than
ACGIH	American Conference of Governmental Industrial Hygienists
EHS	Environmental Health and Safety Dept
N/A	Not Applicable
N/D	Not Determined
N/E	Not Established
OSHA	Occupational Health and Safety Dept
PEL	Personal Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weight Average
UNK	Unknown

Prepared by: Product Compliance Department; ProductCompliance@chemtreat.com

Revision Date: May 9, 2016

Disclaimer

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SAFETY DATA SHEET

M30816 - ANSI - EN

Occidental Chemical Corporation
A subsidiary of Occidental Petroleum Corporation

CHLORINE (LIQUEFIED GAS UNDER PRESSURE) (PESTICIDE)

SDS No.: M30816 **SDS Revision Date:** 03-Apr-2018

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Company Identification:	Occidental Chemical Corporation 5005 LBJ Freeway P.O. Box 809050 Dallas, TX 75380-9050 1-800-752-5151
24 Hour Emergency Telephone Number:	1-800-733-3665 or 1-972-404-3228 (USA); CANUTEC (Canada): 1-613-996-6666; CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186
To Request an SDS:	MSDS@oxy.com or 1-972-404-3245
Customer Service:	1-800-752-5151 or 1-972-404-3700
Product Identifier:	**CHLORINE, LIQUID (PESTICIDE)**
Synonyms:	Chlorine; Chlorine - liquefied gas; Chlorine gas; Chlorine (Liquid or Gas)
Product Use:	water chlorination, water treatment chemicals, chemical synthesis, This material is a registered pesticide: EPA Registration Number 935-8
Uses Advised Against:	None identified; This is a pesticide product; do not use it in a pesticide application that is not included on its label
Note:	This product can be sold into Canada for drinking water and wastewater treatment uses.

SECTION 2. HAZARDS IDENTIFICATION

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

****

EMERGENCY OVERVIEW:

Color: Green to yellow gas, amber liquid
Physical State: Gas
Appearance: Dissolved Gas
Odor: Irritating, Pungent

Signal Word: **DANGER**

MAJOR HEALTH HAZARDS: FATAL IF INHALED. CORROSIVE. CAUSES SEVERE SKIN BURNS AND SERIOUS EYE DAMAGE. CONTACT WITH LIQUID MAY CAUSE FROSTBITE TO EXPOSED TISSUE. ACUTE EXPOSURES CAN CAUSE DAMAGE TO RESPIRATORY SYSTEM. ACUTE EXPOSURE MAY CAUSE DELAYED PULMONARY EDEMA. CAUSES DAMAGE TO RESPIRATORY SYSTEM THROUGH PROLONGED, REPEATED EXPOSURE.

PHYSICAL HAZARDS: CONTAINS GAS UNDER PRESSURE, MAY EXPLODE IF HEATED. OXIDIZER. Hazardous gas under pressure. May ignite or explode on contact with combustible materials. May react explosively with organic materials. Corrosive to most metals in the presence of moisture.

ECOLOGICAL HAZARDS: VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS. This material is toxic to fish and aquatic organisms.

PRECAUTIONARY STATEMENTS: Do not breathe vapor or mist. Use respiratory protection as required. Do not get in eyes, on skin, or on clothing. Wear protective gloves, protective clothing, eye, and face protection. Wash thoroughly after handling. Store away from organic and combustible materials. Store in well-ventilated place. Keep container tightly closed.

ADDITIONAL HAZARD INFORMATION: Toxicity may be delayed, and may not be readily visible. Significant exposures must be referred for medical attention immediately. There is no specific antidote.

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HAZARD CLASSIFICATION:

GHS: PHYSICAL HAZARDS:	Gas Under Pressure - Liquefied Oxidizing Gas
GHS: CONTACT HAZARD - SKIN:	Category 1A - Causes severe skin burns and eye damage
GHS: CONTACT HAZARD - EYE:	Category 1 - Causes serious eye damage
GHS: ACUTE TOXICITY - INHALATION:	Category 2 - Fatal if inhaled
GHS: TARGET ORGAN TOXICITY (SINGLE	Category 1 - Causes damage to: Respiratory and Nervous

EXPOSURE):	System
GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE):	Category 1 - Causes damage to respiratory system through prolonged or repeated exposure
HAZARDOUS TO AQUATIC ENVIRONMENT - ACUTE HAZARD:	Category 1 - Very toxic to aquatic life
HAZARDOUS TO AQUATIC ENVIRONMENT - CHRONIC HAZARD:	Category 1 - Very toxic to aquatic life with long lasting effects

UNKNOWN ACUTE TOXICITY: This product was tested as a whole. This information only pertains to untested mixtures.

GHS SYMBOL: Gas cylinder, Oxidizer, Skull and Crossbones, Corrosive, Health hazards

GHS SIGNAL WORD: DANGER

GHS HAZARD STATEMENTS:

GHS - Physical Hazard Statement(s)
- Contains gas under pressure; may explode if heated
- May cause or intensify fire; oxidizer

GHS - Health Hazard Statement(s)
- Fatal if inhaled
- Causes severe skin burns and eye damage
- Causes serious eye damage
- Causes damage to organs (Respiratory and Nervous Systems)
- Causes damage to respiratory system through prolonged or repeated exposure by inhalation

GHS - Precautionary Statement(s) - Prevention
- Do not breathe gas or vapors
- Wear protective gloves/protective clothing/eye protection/face protection
- In case of inadequate ventilation, wear respiratory protection
- Wash face, hands and any exposed skin thoroughly after handling
- Use only outdoors or in a well-ventilated area
- Do not eat, drink or smoke when using this product
- Keep away from clothing and other combustible materials
- Keep reduction valves free from grease and oil

GHS - Precautionary Statement(s) - Response
- IF INHALED: Remove person to fresh air and keep comfortable for breathing
- Immediately call a POISON CENTER or doctor/physician
- Specific treatment is urgent (see Section 4 of SDS or first aid information on this label)
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse skin with water/shower

- Wash contaminated clothing before reuse
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
- IF exposed: Call a POISON CENTER or doctor/physician
- Get medical advice/attention if you feel unwell
- In case of fire: Stop leak if safe to do so

GHS - Precautionary Statement(s) - Storage
- Store in a secure manner
- Protect from sunlight
- Store in a well-ventilated place. Keep container tightly closed

GHS - Precautionary Statement(s) - Disposal
- Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

Hazards Not Otherwise Classified (HNOC) - GHS
Direct contact with liquid may cause frostbite to exposed tissue (eyes, skin, etc.)

See Section 11: TOXICOLOGICAL INFORMATION

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Percent [%]	CAS Number
Chlorine	99.5 - 100	7782-50-5

SECTION 4. FIRST AID MEASURES

INHALATION: If inhalation of vapor or gas occurs and adverse effects result, remove to uncontaminated area. Evaluate ABC's (is Airway constricted, is Breathing occurring, and is blood Circulating) and treat symptomatically. Exposed individuals may benefit from humidified air and or humidified oxygen. GET MEDICAL ATTENTION IMMEDIATELY. Significant acute exposures may result in delayed pulmonary edema. There is no specific antidote, treat symptomatically.

SKIN CONTACT: Immediately flush contaminated areas with water. Exposure to liquid may cause frostbite burns. Remove contaminated clothing, jewelry and shoes. Do not attempt to remove frozen clothing from frostbitten areas. Wash contaminated areas with large amounts of water. Thoroughly clean and dry contaminated clothing and shoes before reuse. GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT: Immediately flush contaminated eyes with a directed stream of water for as long as possible. Remove contact lenses, if present, then continue rinsing. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION: Not a likely route of exposure. Contact with liquid may cause frostbite. If swallowed, GET MEDICAL ATTENTION IMMEDIATELY.

Most Important Symptoms/Effects (Acute and Delayed):

Acute Symptoms/Effects:

Inhalation (Breathing): Respiratory System Effects: Inhalation exposure may cause irritation, redness of upper and lower airways, coughing, laryngeospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. Severe and permanent scarring may occur. The pulmonary edema may develop several hours after a severe acute exposure.

Skin: Skin Corrosion. Skin exposure to gas or liquid may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns.

Eye: Serious Eye Damage: Acute eye exposure to 3-6 ppm in air causes sensations of stinging and burning in some individuals, with associated eyelid spasm, redness, and watering. Exposure to eyes may cause irritation and burns to the eyelids, conjunctivitis, corneal edema, and corneal burn. Contact with liquid could cause frostbite and severe injury.

Ingestion (Swallowing): No known effects. Ingestion is not a likely route of exposure.

Delayed Symptoms/Effects:

- Repeated exposures in workers have been associated with decreases in pulmonary functions, decreases in diffusing capacity, reactive airways, and hyper-responsiveness to methacoline challenge
- Prolonged frequently repeated skin contact may cause allergic reactions in some individuals.

Medical Conditions Aggravated by Exposure: Pulmonary diseases such as hyperactive airways, restrictive and obstructive pulmonary diseases such as COPD, bronchitis, emphysema, interstitial pulmonary disease. Skin disorders that compromise the integrity of the skin. Eye disorders that decrease tear production or have reduced integrity.

Protection of First-Aiders: Stay out of areas where there is liquid or gaseous chlorine. Use personal protective equipment. Refer to Section 8 for specific personal protective equipment recommendations. Remove contaminated clothing and wash before reuse. Remove affected individuals from exposure. At minimum, treating personnel should utilize PPE sufficient for prevention of bloodborne pathogen transmission.

Notes to Physician: Symptomatic individuals without hypoxia may benefit from humidified air. Delayed pulmonary edema may occur in the context of severe and symptomatic airway exposure. There is no specific antidote. Treat symptoms with supportive care. Follow normal parameters for airway, breathing, and circulation. Probable mucosal damage may contraindicate the use of gastric lavage.

SECTION 5. FIRE-FIGHTING MEASURES

Fire Hazard: Chlorine is not combustible, but it enhances the combustion of other substances. Most combustibles will burn in this material producing irritating, corrosive, and/or toxic gases. In water, chlorine is a strong acid, corrosive, and an oxidizer. Run-off from fire control may cause pollution. If the situation allows, control and properly dispose of run-off (effluent).

Explosive properties: May ignite or explode on contact with combustible materials. May react explosively with organic materials. Pressurized containers may explode when exposed to high temperatures.

Extinguishing Media: Use extinguishing agents appropriate for surrounding fire

Fire Fighting: Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Avoid inhalation of material or combustion by-products. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Do not direct water at the source of the leak or at

safety devices; icing may occur. Flame impingement on steel chlorine container can result in over pressurization or iron/chlorine fire causing rupture of the container. Do not get water inside containers. Move containers from the fire area if it is possible to do so without risk to personnel. Damaged cylinders should handled only by specialists trained and properly protected by PPE as described in Section 8. For large fires and fires involving tanks or tank cars, fight the fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after the fire is out. Do not direct water at the source of the leak, because chlorine and water react to form acids and the leak will get worse. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tanks. Always stay away from tanks engulfed in fire, withdraw from the area and let the fire burn.

Component	Immediately Dangerous to Life/ Health (IDLH)
Chlorine 7782-50-5	10 ppm IDLH

Sensitivity to Mechanical Impact: Not sensitive.

Sensitivity to Static Discharge: Not sensitive.

Lower Flammability Level (air): Not applicable

Upper Flammability Level (air): Not applicable

Flash point: Not flammable

Auto-ignition Temperature: Not determined

GHS: PHYSICAL HAZARDS:
- Gas Under Pressure - Liquefied
- Oxidizing Gas

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:
Evacuate unprotected personnel upwind or crosswind for at least 100 feet (800 feet for large spills) out of danger area. Isolate area. Keep unnecessary and unprotected personnel from entering the area. Vapors tend to accumulate in low areas. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to Section 7, Handling and Storage, for additional precautionary measures.

Environmental Precautions:
Keep out of water supplies and sewers. See Section 12 for additional ecological information. Call supplier, CHLOREP team, or CHEMTREC when help is needed. Releases should be reported, if required, to appropriate agencies.

Methods and Materials for Containment and Cleaning Up:
Remove sources of ignition. Stop leak if possible without personal risk. If a chlorine container is leaking, try to position it so that gas rather than liquid leaks. Apply emergency kit device if possible. For other than minor leaks, immediately implement predetermined emergency plan. Do not apply water directly to a leak. Reacts with water to form corrosive, acidic solution (hydrochloric acid). Call supplier, CHLOREP team, or CHEMTREC when help is needed.

SECTION 7. HANDLING AND STORAGE

General: Do not attempt to store, handle or use without complete review of The Chlorine Institute Chlorine Manual (Phone: (703) 894-4140).

Precautions for Safe Handling:
Use only approved materials of construction and lubricants. Chlorine should only be used in sealed systems. Do not breathe vapours or spray mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Liquefied gas under pressure. Piping and equipment must be thoroughly cleaned of organics and moisture before use. Corrosive to most metals in the presence of moisture. Liquid lines must have suitable expansion chambers between block valves due to the high coefficient of expansion.

Safe Storage Conditions:
Store and handle in accordance with all current regulations and standards. Keep container tightly closed. Store in a well-ventilated area. Protect from sunlight. Do not apply heat. Keep away from heat, sparks and open flames. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet). Avoid contact with water or moisture. Reacts with water to form a corrosive, acidic solution. The vapor is heavier than air. Most vapors that are heavier than air will spread along ground and collect in low or confined areas (drains, basements, tanks). Store away from basements, pits or other confined spaces. Make daily inspections for leaks. Protect from physical damage.

Incompatibilities/ Materials to Avoid:
ammonia, elemental metals, metal hydrides, carbides, nitrides, oxides, phosphides, sulfides, easily oxidized materials, organic materials, (e.g., petrochemicals, oils, greases), unstable and reactive compounds

GHS: PHYSICAL HAZARDS:
- Gas Under Pressure - Liquefied
- Oxidizing Gas

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

REGULATORY EXPOSURE LIMIT(S):
As listed below.

Component	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PELCeiling
Chlorine 7782-50-5	-----	-----	1 ppm 3 mg/m³

• OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit
• OSHA Ceiling values indicate the exposure limit which at no time shall be exceed. Instantaneous monitoring is the preferred method to determine compliance with OSHA Ceiling values. If instantaneous monitoring is not feasible, then the ceiling shall be assessed as a 15-minute time weighted average exposure which shall not be exceeded at any time during the working day [29CFR1910.1000(a)(1)

NON-REGULATORY EXPOSURE LIMIT(S):

As listed below.

Component	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	Skin Absorption - ACGIH	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Chlorine	0.1 ppm	0.4 ppm	-----	-----	0.5 ppm 1.5 mg/m^3	1 ppm 3 mg/m^3	-----

- The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits, if shown, are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

ENGINEERING CONTROLS: Do not use in poorly ventilated or confined spaces. Use closed systems when possible. Provide local exhaust ventilation where vapor or mist may be generated. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Wear safety glasses with side-shields. Wear chemical safety goggles with a face shield to protect against eye and skin contact when appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear appropriate chemical resistant clothing. When responding to accidental release of unknown concentrations, wear one-piece, total encapsulating suit of Butyl coated nylon or equivalent.

Hand Protection: Wear chemical resistant, insulated gloves such as Perfect Fit NL-56(TM) or Best 6781R(TM). Consult a glove supplier for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types:
Perfect Fit NL-56(TM), Best 6781R(TM), Best Nitri Solve 727(TM), Tychem 10000 (TM)

Respiratory Protection: Where vapor concentration exceeds or is likely to exceed applicable exposure limits, a NIOSH approved respirator is required. When an air purifying respirator is not adequate for spills and/or emergencies of unknown concentrations, an approved self-contained breathing apparatus operated in the pressure demand mode is required. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

Component	Immediately Dangerous to Life/ Health (IDLH)
Chlorine 7782-50-5	10 ppm IDLH

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Gas
Appearance: Dissolved Gas

Color:	Green to yellow gas, amber liquid
Odor:	Irritating, Pungent
Odor Threshold [ppm]:	0.31 ppm (approximate).
Molecular Weight:	70.91
Molecular Formula:	Cl2
Boiling Point/Range:	-29.27 °F (-34.04 °C)
Freezing Point/Range:	-150 °F (-101 °C).
Melting Point/Range:	Not applicable
Vapor Pressure:	5830 mmHg @ 25 °C
Vapor Density (air=1):	2.4
Relative Density/Specific Gravity (water=1):	1.4 @ 15.6 °C
Density:	11.7 lbs/gal @ 15.6 °C
Water Solubility:	0.7% @ 20 C
pH:	Not applicable
Volatility:	100%
Evaporation Rate (ether=1):	No data available
Partition Coefficient (n-octanol/water):	No data available
Flash point:	Not flammable
Flammability (solid, gas):	No data available
Lower Flammability Level (air):	Not applicable
Upper Flammability Level (air):	Not applicable
Auto-ignition Temperature:	Not determined
Viscosity:	No data available

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable at normal temperatures and pressures.

Reactivity: Oxidizer.

Possibility of Hazardous Reactions: Dry material is highly reactive with titanium and tin. Reacts with most metals at high temperatures or in the presence of moisture. Avoid contact with water. Reacts with water to form corrosive, acidic solution (hydrochloric acid). May react explosively with organic materials.

Conditions to Avoid:
- (e.g., static discharge, shock, or vibration) -
- No information available

Incompatibilities/ Materials to Avoid: ammonia; elemental metals; metal hydrides; carbides; nitrides; oxides; phosphides; sulfides; easily oxidized materials; organic materials; (e.g., petrochemicals, oils, greases); unstable and reactive compounds

Hazardous Decomposition Products: None known

Hazardous Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

TOXICITY DATA:

Component	LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
Chlorine 7782-50-5	No information available	No information available	293 ppm (1 hr - Rat)

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POTENTIAL HEALTH EFFECTS:

Eye contact: Causes serious eye damage. Liquid exposure may cause frostbite.

Skin contact: Causes skin burns. Liquid exposure may cause frostbite.

Inhalation: May cause irritation (possibly severe), chemical burns, and pulmonary edema. Significant exposures may be fatal.

Ingestion: Not a likely route of exposure. Ingestion of product may cause irritation and burns to the contacted tissue.

SIGNS AND SYMPTOMS OF EXPOSURE:

Listed below.

Inhalation (Breathing): Respiratory System Effects: Inhalation exposure may cause irritation, redness of upper and lower airways, coughing, laryngeospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. Severe and permanent scarring may occur. The pulmonary edema may develop several hours after a severe acute exposure.
Skin: Skin Corrosion. Skin exposure to gas or liquid may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns.
Eye: Serious Eye Damage: Acute eye exposure to 3-6 ppm in air causes sensations of stinging and burning in some individuals, with associated eyelid spasm, redness, and watering. Exposure to eyes may cause irritation and burns to the eyelids, conjunctivitis, corneal edema, and corneal burn. Contact with liquid could cause frostbite and severe injury.
Ingestion (Swallowing): No known effects. Ingestion is not a likely route of exposure.

ACUTE TOXICITY:
• This material is corrosive to the skin, eyes, and respiratory tract. Breathing this material is harmful and can causedeath. Harmful effects include burns and permanent damage to the airways, including the nose, throat, and lungs.
• The extent of injury following chlorine exposure depends upon concentration and duration of exposure as well aswater content of the tissue involved.
• Estimated effects are as follows:
- 0.2 - 0.4 ppm odor detection (some tolerance develops)

- 1 - 3 ppm mild mucous membrane irritation (can be tolerated ~ 1 hour)
- 5 - 15 ppm moderate irritation of upper respiratory tract
- 30 ppm immediate chest pain, vomiting, dyspnea, cough
- 40 - 60 ppm toxic pneumonitis and pulmonary edema
- 430 ppm lethal over 30 minutes
- 1000 ppm fatal within a few minutes

• Its action in the respiratory tract is due to its strong oxidizing capability; it forms both hypochlorous acid andhypochloric acid on contact with moist mucous membranes. Symptoms of pulmonary congestion and edema maydevelop after a latency period of several hours following severe acute exposure to chlorine

CHRONIC TOXICITY:
Prolonged frequently repeated skin contact may cause allergic reactions in some individuals. Repeat exposures in workers have been associated with decreases in pulmonary functions, decreases in diffusing capacity, reactive airways, and hyper-responsiveness to mehtaholine challenge. Long term overexposure may produce upper airway changes leading to an increased prevalence of colds, shortness of breath, and reactive airway dysfunction syndrome.

ADDITIONAL DATA: Odor does not provide an adequate warning of exposure. In workers exposed to chlorine for a 2 to 5 year period, all had some degree of olfactory impairment. Sensory irritation tolerance developed in rats when they were pretreated with 1 ppm chlorine.

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GHS HEALTH HAZARDS:
Listed below.

GHS: ACUTE TOXICITY - INHALATION: Category 2 - Fatal if inhaled.

GHS: CONTACT HAZARD - EYE: Category 1 - Causes serious eye damage

GHS: CONTACT HAZARD - SKIN: Category 1 - Causes severe skin burns and eye damage.

Skin Absorbent / Dermal Route: Yes.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):
Category 1 - Causes damage to: Respiratory and Nervous System

SPECIFIC TARGET ORGAN TOXICITY (Repeated or Prolonged Exposure):
Category 1 - Respiratory System (Lungs)

MUTAGENIC DATA:
Not classified as a mutagen per GHS criteria. This material has tested positive in one or more in vitro mutagenicity studies.

OTHER HAZARDS:
Direct contact with liquid may cause frostbite to exposed tissue (eyes, skin, etc.).

SECTION 12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

Aquatic Toxicity:
This material is highly toxic to fish and aquatic organisms

Fish Toxicity:
LC50 Fathead minnow: 0.07 to 0.15 (96 hour)
LC50 Bluegill: 0.44 mg/l (96 hour)

Invertebrate Toxicity:
LC50 Daphnia: 30 to 150 ug/L (48 hour)

FATE AND TRANSPORT:

BIODEGRADATION: This material is an element and not subject to biodegradation.

PERSISTENCE: The atmospheric half-life and lifetime of this material due to photolysis is estimated at 10 and 14 minutes, respectively. The half-life of free residual material in fresh water has been estimated at 1.3 to 5 hours.

BIOCONCENTRATION: This material is not expected to bioconcentrate in organisms.

ADDITIONAL ECOLOGICAL INFORMATION: This material has exhibited toxicity to terrestrial organisms.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from material:
Use or process if possible. Chlorine may be absorbed into an alkaline solution such as caustic soda, soda ash or hydrated lime. Dispose in accordance with all applicable regulations.

Container Management:
Return empty chlorine tankcars and cargo tanks containing residual gas and/or liquid to supplier in compliance with applicable DOT regulations. See product label for container disposal information.

SECTION 14. TRANSPORT INFORMATION

LAND TRANSPORT

U.S. DOT 49 CFR 172.101:

UN NUMBER:	UN1017
PROPER SHIPPING NAME:	Chlorine
HAZARD CLASS/ DIVISION:	2.3 (5.1, 8)
LABELING REQUIREMENTS:	2.3, 5.1, 8

MARINE POLLUTANT: Chlorine

RQ (lbs.): RQ 10 Lbs. (Chlorine)

ADDITIONAL INFORMATION: Toxic-Inhalation Hazard Zone B.

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

*** NOTE:** Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code.

UN NUMBER: UN1017
SHIPPING NAME: Chlorine
CLASS OR DIVISION: 2.3, 5.1, 8
LABELING REQUIREMENTS: 2.3, 5.1, 8
OTHER INFORMATION: Emergency Response Assistance Plan (ERAP) may be required

MARITIME TRANSPORT (IMO / IMDG) Regulated

*** NOTE:** Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code.

UN NUMBER: UN1017
PROPER SHIPPING NAME: Chlorine
LABELING REQUIREMENTS: 2.3, 5.1, 8, Environmental hazard
MARINE POLLUTANT: Chlorine

AIR TRANSPORT (ICAO / IATA) Regulated

SECTION 15. REGULATORY INFORMATION

U.S. REGULATIONS

OSHA REGULATORY STATUS:
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
If a release is reportable under CERCLA section 103, notify the state emergency response commission and local emergency planning committee. In addition, notify the National Response Center at (800) 424-8802 or (202) 426-2675.

Component	U.S. DOT Hazardous Substances/ RQs	CERCLA Hazardous Substances / RQs	CERCLA Section 302 EHS EPCRA RQs	Section 302 Threshold Planning Quantity (TPQs)
Chlorine 7782-50-5	10 lbs(RQ)	10 lb(final RQ)	10 lb(EPCRA RQ)	100 lb TPQ

SARA EHS Chemical (40 CFR 355.30)
If a release is reportable under EPCRA, notify the state emergency response commission and local emergency planning committee. If the TPQ is met, facilities are subject to reporting requirements under EPCRA Sections 311 and 312.

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):
Acute Health Hazard, Fire Hazard, Sudden Release of Pressure, Chronic Health Hazard, Extremely Hazardous

SARA HAZARD CATEGORIES ALIGNED WITH GHS (2018):
Physical Hazard - Gas Under Pressure
Physical Hazard - Oxidizer (liquid, solid or gas)
Health Hazard - Acute Toxin (any route of exposure)
Health Hazard - Skin Corrosion or Irritation
Health Hazard - Serious eye damage or eye irritation
Health Hazard - Specific Target Organ Toxicity (STOT) Single Exposure (SE)
Health Hazard - Specific Target Organ Toxicity (STOT) Repeat Exposure (RE)

EPCRA SECTION 313 (40 CFR 372.65):
The following chemicals are listed in 40 CFR 372.65 and may be subject to Community Right-to Know Reporting requirements

Component	SARA 313 - Emission Reporting	SARA 313 PBT
Chlorine	1.0% (de minimis concentration)	Not Listed

DEPARTMENT OF HOMELAND SECURITY (DHS)- Chemical Facility Anti-Terrorism Standards (6 CFR 27):
This product is regulated under the U.S. Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) as follows:

Component	DHS - Security Issues	DHS-Sabotage Screening Threshold Qnty.	DHS-Sabotage Min. Conc.	DHS-Theft Screening Threshold Qnty.	DHS-Theft Min. Conc.	DHS-Release Screening Threshold Qnty.	DHS-Release Min. Conc.	CWC Toxic Chemicals:
Chlorine 7782-50-5	Release - Toxic; Theft - Weapons of Mass Effect	Not Listed	Not Listed	500 lb STQ	9.77 % Minimum Concentration	2500 lb STQ	1.0%Minimum Concentration	

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):
CHLORINE: 1500 LBS TQ

Component	EPA RMP Toxic or Flammable TPQ	PSM - Highly Hazardous Substances	Flash Point
Chlorine	Toxic (2500 lb threshold quantity)	1500 lb TQ	

FIFRA REGULATIONS: Registered pesticide under 40 CFR 152.10, Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), EPA Reg. No. 935-8 (Chlorine Liquified Gas)

FIFRA LABELING REQUIREMENTS: - This chemical is a pesticide product registered by the United States Environmental Protection Agency (EPA) and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.
- FIFRA Signal Word - DANGER - POISON
- FIFRA Symbol - Skull and Crossbones
- Fatal if inhaled
- Liquid causes severe burns
- Fatal if inhaled or absorbed through skin
- Corrosive
- Causes irreversible eye damage and skin burns
- Prolonged frequently repeated skin contact may cause allergic reactions in some individuals
- This product is toxic to fish and aquatic organisms
- Chlorine is a non-flammable gas, liquefied, under pressure

- Corrosive to most metals in the presence of moisture

EPA'S CLEAN WATER AND CLEAN AIR ACTS:

Component	Clean Water Act - Priority Pollutants	CAA - ODS CLASS 1 AND CLASS 2	CAA - Volatile Organic Compounds (VOCs) in SOCMI	CAA - HON Rule - Organic HAPs	CAA - Hazard Air Pollutants	CAA - Urban HAPs List (Integrated Urban Strategy)	SNAP - Substitutes for ODS	EPA RMP Toxic or Flammable TPQ
Chlorine 7782-50-5 (99.5 - 100)	Not Listed	Not Listed	Not Listed	Not Listed	Present	Not Listed	Not Listed	Toxic (2500 lb threshold quantity)

NATIONAL INVENTORY STATUS

Component	TSCA Inventory	TSCA 12(b)	TSCA - Section 4	TSCA - Section 5	TSCA - Section 6	TSCA - Section 8	TSCA - 8(a) PAIR	TSCA - 8(d) IUR	TSCA - 8(a) CAIR
7782-50-5	Listed	Not Listed	Not listed	Not Listed	Not listed	Not listed	Not listed	Not listed	Not listed

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA): All components are listed or exempt.

TSCA 12(b): This product is not subject to export notification.

Canadian Chemical Inventory: All components of this product are listed on either the DSL or the NDSL.

Component	DSL	NDSL
Chlorine 7782-50-5	Listed	Not Listed

STATE REGULATIONS

Component	California Proposition 65 Cancer WARNING:	California Proposition 65 CRT List - Male reproductive toxin:	California Proposition 65 CRT List - Female reproductive toxin:	Massachusetts Right to Know Hazardous Substance List	New Jersey Right to Know Hazardous Substance List	New Jersey Special Health Hazards Substance List
Chlorine 7782-50-5	Not Listed	Not Listed	Not Listed	Listed	0367	Not Listed

Component	New Jersey - Environmental Hazardous Substance List	Pennsylvania Right to Know Hazardous Substance List	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Environmental Hazard List	Rhode Island Right to Know Hazardous Substance List
Chlorine 7782-50-5	Listed	Listed	Not Listed	Present	Listed

CANADIAN REGULATIONS

• This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations

Component	Canada - CEPA - Schedule I - List of Toxic Substances	Canada - NPRI	Canada - CEPA - 2010 Greenhouse Gases (GHG) Subject to Mandatory Reporting	Canadian Chemical Inventory:	NDSL:
Chlorine	Not listed	Part 1, Group 1 Substance	Not Listed	Listed	Not Listed
WHMIS - Classifications of Substances:					

- A - Compressed Gas
- C - Oxidizing Material
- D1A - Poisonous and Infectious Material; Materials causing immediate and serious toxic effects - Very toxic material
- E - Corrosive material

WHMIS Hazard Class:
- A Compressed gases
- C Oxidizing materials
- D1A Very toxic materials
- E Corrosive material

SECTION 16. OTHER INFORMATION

Prepared by: Occidental Chemical Corporation - HES&S Product Stewardship Department

Rev. Date: 03-Apr-2018

Reason for Revision:
- Exposure Level has changed. SEE SECTION 8
- Added Department of Homeland Security Anti-Terrorism Information: SEE SECTION 15
- Added LOLI tables such as EPA'S Clean Water / Air Act, TSCA status, DHS, PSM, EPCRA, CERCLA, Federal Canadian: SEE SECTION 15
- Added SARA Hazard Categories Aligned with GHS (2018): SEE SECTION 15

IMPORTANT:
The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESSED OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal and other factors that may involve other or additional legal, environmental, safety or performance considerations, and Occidental Chemical Corporation assumes no liability whatsoever for the use of or reliance upon this information. While our technical personnel will be happy to respond to questions, safe handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any federal, state, local or foreign laws.

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees.

End of Safety Data Sheet

SAFETY DATA SHEET

1. IDENTIFICATION

Product identifier
Product Name Citric Acid

Other means of identification
Product Code(s) 2106269

Safety data sheet number M00072

Recommended use of the chemical and restrictions on use
Recommended Use Laboratory reagent.
Uses advised against None.
Restrictions on use None.

Details of the supplier of the safety data sheet

Manufacturer Address
Hach Company P.O.Box 389 Loveland, CO 80539 USA +1(970) 669-3050

Emergency telephone number
+1(303) 623-5716 - 24 Hour Service +1(515)232-2533 - 8am - 4pm CST

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A

Hazards not otherwise classified (HNOC)
Not applicable

Label elements

Signal word - Warning

Hazard statements

H315 - Causes skin irritation
H319 - Causes serious eye irritation

Precautionary statements
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P362 - Take off contaminated clothing and wash before reuse
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention

Other Hazards Known
May be harmful if swallowed
May be harmful in contact with skin

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Formula	$C_6H_8O_7$
CAS No	77-92-9
Alternate CAS Number	5949-29-1 - Monohydrate

Percent ranges are used where confidential product information is applicable.

Chemical name	CAS No.	Percent Range	HMRIC #
Citric acid	77-92-9	100%	-

4. FIRST AID MEASURES

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance.

Inhalation Remove to fresh air. Get medical attention immediately if symptoms occur.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. Do not rub affected area.

Skin contact Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

Ingestion Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.

Self-protection of the first aider Avoid contact with skin, eyes or clothing.

Most important symptoms and effects, both acute and delayed

Symptoms Burning sensation.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media	Caution: Use of water spray when fighting fire may be inefficient.
Specific hazards arising from the chemical	No information available.
Hazardous combustion products	No information available.
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

6. ACCIDENTAL RELEASE MEASURES

U.S. Notice	Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.
Other Information	Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Pick up and transfer to properly labeled containers.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.
Reference to other sections	See section 8 for more information. See section 13 for more information.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place.
Flammability class	Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hand Protection Wear suitable gloves. Impervious gloves.

Eye/face protection If splashes are likely to occur, wear safety glasses with side-shields.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing.

General Hygiene Considerations Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing.

Environmental exposure controls Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

Thermal hazards None under normal processing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state Solid
Appearance crystalline
Odor Odorless
Color white
Odor threshold No data available

Property	Values	Remarks • Method
Molecular weight	192.12 g/mole	
pH	Not applicable	Not applicable
Melting point/freezing point	153 °C / 307 °F	
Boiling point / boiling range	No data available	
Evaporation rate	Not applicable	
Vapor pressure	Not applicable	
Vapor density (air = 1)	Not applicable	
Specific gravity (water = 1 / air = 1)	1.67	
Partition Coefficient (n-octanol/water)	log K_{ow} = -1.72	

Soil Organic Carbon-Water Partition Coefficient	log K_{oc} = -1.16
Autoignition temperature	540 °C / 1004 °F
Decomposition temperature	175 °C / 347 °F
Dynamic viscosity	Not applicable
Kinematic viscosity	Not applicable

Solubility(ies)

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Completely soluble	750000 mg/L	25 °C / 77 °F

Solubility in other solvents

Chemical Name	Solubility classification	Solubility	Solubility Temperature
Acids	Soluble	> 1000 mg/L	25 °C / 77 °F
Ethyl alcohol	Soluble	> 1000 mg/L	25 °C / 77 °F
Methanol	Soluble	> 1000 mg/L	25 °C / 77 °F
Benzene	Insoluble	< 0.1 mg/L	25 °C / 77 °F
Chloroform	Insoluble	< 0.1 mg/L	25 °C / 77 °F

Other Information

Metal Corrosivity

Steel Corrosion Rate	Not applicable
Aluminum Corrosion Rate	Not applicable

Volatile Organic Compounds (VOC) Content
This Product is by Weight 100% an Individual Pure Chemical Substance

Chemical name	CAS No.	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
Citric acid	77-92-9	No data available	-

Explosive properties

Upper explosion limit	64%
Lower explosion limit	18%

Flammable properties

Flash point	Not applicable

Flammability Limit in Air

Upper flammability limit:	No data available
Lower flammability limit:	No data available

Oxidizing properties	No data available.
Bulk density	No data available
Particle Size	No information available

Particle Size Distribution No information available

10. STABILITY AND REACTIVITY

Reactivity
Not applicable.

Chemical stability
Stability Stable under normal conditions.

Explosion data
Sensitivity to Mechanical Impact None
Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions
Possibility of Hazardous Reactions None under normal processing.

Hazardous polymerization
None under normal processing.

Conditions to avoid
Conditions to avoid None known based on information supplied.

Incompatible materials
Incompatible materials Strong acids. Strong bases. Strong oxidizing agents.

Hazardous Decomposition Products
Thermal decomposition can lead to release of irritating and toxic gases and vapors.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure
Product Information

Inhalation	May cause irritation of respiratory tract.
Eye contact	Irritating to eyes. Causes serious eye irritation.
Skin contact	Causes skin irritation.
Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Symptoms	Redness. May cause redness and tearing of the eyes.
Aggravated Medical Conditions	Skin disorders. Eye disorders.
Toxicologically synergistic products	None known.
Toxicokinetics, metabolism and distribution	This Product is by Weight 100% an Individual Pure Chemical Substance.

Product Acute Toxicity Data	This Product is by Weight 100% an Individual Pure Chemical Substance
Oral Exposure Route	If available, see ingredient data below
Dermal Exposure Route	If available, see ingredient data below
Inhalation (Dust/Mist) Exposure Route	If available, see ingredient data below
Inhalation (Vapor) Exposure Route	If available, see ingredient data below
Inhalation (Gas) Exposure Route	If available, see ingredient data below

Unknown Acute Toxicity

0% of the mixture consists of ingredient(s) of unknown toxicity.

Acute Toxicity Estimations (ATE) Not applicable

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	No information available
ATEmix (dermal)	No information available
ATEmix (inhalation-dust/mist)	No information available
ATEmix (inhalation-vapor)	No information available
ATEmix (inhalation-gas)	No information available

Ingredient Acute Toxicity Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Citric acid (100%) CAS#: 77-92-9	Rat LD_{50}	3000 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)

Dermal Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Citric acid (100%) CAS#: 77-92-9	Rat LD_{50}	> 2000 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)

Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Product Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route If available, see ingredient data below
Dermal Exposure Route If available, see ingredient data below
Inhalation (Dust/Mist) Exposure Route If available, see ingredient data below
Inhalation (Vapor) Exposure Route If available, see ingredient data below
Inhalation (Gas) Exposure Route If available, see ingredient data below

Ingredient Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route If available, see data below
Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Citric acid (100%) CAS#: 77-92-9	Rat TD_{Lo}	0.180 mg/L	None reported	**Lungs, Thorax, or Respiration** Other changes **Liver** Impaired liver function tests **Biochemical** Enzyme inhibition, induction, or change in blood or tissue levels (dehydrogenases)	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Aspiration toxicity
If available, see data below
Kinematic viscosity Not applicable

Product Skin Corrosion/Irritation Data
This Product is by Weight 100% an Individual Pure Chemical Substance. If available, see ingredient data below.

Ingredient Skin Corrosion/Irritation Data
If available, see data below

Product Serious Eye Damage/Eye Irritation Data
This Product is by Weight 100% an Individual Pure Chemical Substance. If available, see ingredient data below.

Ingredient Eye Damage/Eye Irritation Data
If available, see data below

Sensitization Information

Product Sensitization Data

Skin Sensitization Exposure Route	This Product is by Weight 100% an Individual Pure Chemical Substance. If available, see ingredient data below.
Respiratory Sensitization Exposure Route	This Product is by Weight 100% an Individual Pure Chemical Substance. If available, see ingredient data below.

Ingredient Sensitization Data

Skin Sensitization Exposure Route	If available, see data below.
Respiratory Sensitization Exposure Route	If available, see data below.

Chronic Toxicity Information

Product Specific Target Organ Toxicity Repeat Dose Data

Oral Exposure Route	If available, see ingredient data below.
Dermal Exposure Route	If available, see ingredient data below.
Inhalation (Dust/Mist) Exposure Route	If available, see ingredient data below.
Inhalation (Vapor) Exposure Route	If available, see ingredient data below.
Inhalation (Gas) Exposure Route	If available, see ingredient data below.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Citric acid (100%) CAS#: 77-92-9	Rat TD_{Lo}	930 mg/kg	15 days	**Biochemical** Enzyme inhibition, induction, or change in blood or tissue levels (dehydrogenases) **Blood** Changes in serum composition (e.g. TP, bilirubin, cholesterol)	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below

Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Citric acid (100%) CAS#: 77-92-9	Rat TD_{Lo}	0.180 mg/L	None reported	**Lungs, Thorax, or Respiration** Other changes **Liver** Impaired liver function tests **Biochemical** Enzyme inhibition, induction, or change in blood or tissue levels (dehydrogenases)	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Vapor) Exposure Route If available, see data below

Inhalation (Gas) Exposure Route If available, see data below

Product Carcinogenicity Data

Oral Exposure Route	If available, see ingredient data below
Dermal Exposure Route	If available, see ingredient data below
Inhalation (Dust/Mist) Exposure Route	If available, see ingredient data below
Inhalation (Vapor) Exposure Route	If available, see ingredient data below
Inhalation (Gas) Exposure Route	If available, see ingredient data below

Ingredient Carcinogenicity Data

Chemical name	CAS No.	ACGIH	IARC	NTP	OSHA
Citric acid	77-92-9	-	-	-	-

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	Does not apply
IARC (International Agency for Research on Cancer)	Does not apply
NTP (National Toxicology Program)	Does not apply
OSHA (Occupational Safety and Health Administration of the US Department of Labor)	Does not apply

Oral Exposure Route	If available, see data below
Dermal Exposure Route	If available, see data below
Inhalation (Dust/Mist) Exposure Route	If available, see data below
Inhalation (Vapor) Exposure Route	If available, see data below
Inhalation (Gas) Exposure Route	If available, see data below

Product Germ Cell Mutagenicity *invitro* Data
This Product is by Weight 100% an Individual Pure Chemical Substance. If available, see ingredient data below.

Ingredient Germ Cell Mutagenicity *invitro* Data
No data available

Product Germ Cell Mutagenicity *invivo* Data

Oral Exposure Route	If available, see ingredient data below
Dermal Exposure Route	If available, see ingredient data below
Inhalation (Dust/Mist) Exposure Route	If available, see ingredient data below
Inhalation (Vapor) Exposure Route	If available, see ingredient data below
Inhalation (Gas) Exposure Route	If available, see ingredient data below

Ingredient Germ Cell Mutagenicity *invivo* Data

Oral Exposure Route	If available, see data below
Dermal Exposure Route	If available, see data below
Inhalation (Dust/Mist) Exposure Route	If available, see data below
Inhalation (Vapor) Exposure Route	If available, see data below
Inhalation (Gas) Exposure Route	If available, see data below

Product Reproductive Toxicity Data

Oral Exposure Route	If available, see ingredient data below
Dermal Exposure Route	If available, see ingredient data below
Inhalation (Dust/Mist) Exposure Route	If available, see ingredient data below
Inhalation (Vapor) Exposure Route	If available, see ingredient data below
Inhalation (Gas) Exposure Route	If available, see ingredient data below

Ingredient Reproductive Toxicity Data

Oral Exposure Route	If available, see data below
Inhalation (Dust/Mist) Exposure Route	If available, see data below
Inhalation (Vapor) Exposure Route	If available, see data below
Inhalation (Gas) Exposure Route	If available, see data below

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product Ecological Data

This Product is by Weight 100% an Individual Pure Chemical Substance

Aquatic toxicity

Fish If available, see ingredient data below
Crustacea If available, see ingredient data below
Algae If available, see ingredient data below

Ingredient Ecological Data

Aquatic toxicity

Fish If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Citric acid (100%) CAS#: 77-92-9	96 hours	*Lepomis macrochirus*	LC_{50}	1516 mg/L	IUCLID (The International Uniform Chemical Information Database)

Crustacea If available, see ingredient data below
Algae No data available

Other Information

Persistence and degradability

Product Biodegradability Data
This Product is by Weight 100% an Individual Pure Chemical Substance.

Ingredient Biodegradability Data

Chemical name	Test method	Biodegradation	Exposure time	Results
Citric acid (100%) CAS#: 77-92-9	None reported	None reported	None reported	Readily biodegradable

Bioaccumulation

Product Bioaccumulation Data
This Product is by Weight 100% an Individual Pure Chemical Substance.

Partition Coefficient (n-octanol/water) log K_{ow} = -1.72

Ingredient Bioaccumulation Data

Chemical name	Test method	Exposure time	Species	Bioconcentration factor (BCF)	Results
Citric acid (100%) CAS#: 77-92-9	None reported	None reported	None reported	None reported	Does not have the potential to bioaccumulate

Mobility

Soil Organic Carbon-Water Partition Coefficient log K_{oc} = -1.16

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Completely soluble	750000 mg/L	25 °C / 77 °F

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

US EPA Waste Number D002

14. TRANSPORT INFORMATION

U.S. DOT
Proper shipping name Acetal

TDG Not regulated
Proper shipping name Acetal

IATA Not regulated
Proper shipping name Acetal

IMDG Not regulated
Proper shipping name Acetal

Additional information
There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods.
If the item is not in a reagent set or kit, the classification given above applies.
If the item is part of a reagent set or kit the classification would change to the following:
UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.
If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

National Inventories

TSCA	Complies
DSL/NDSL	Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies

PICCS	Complies
TCSI	Complies
AICS	Complies
NZIoC	Complies

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TCSI - Taiwan Chemical Substances Inventory
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

U.S. EPA Label Information

Chemical name	FIFRA	FDA
Citric acid	180.0950	21 CFR 184.1033

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments
None

Additional information

Global Automotive Declarable Substance List (GADSL)
Not applicable

NFPA and HMIS Classifications

NFPA	**Health hazards** - 2	**Flammability** - 0	**Instability** - 0	**Physical and Chemical Properties** -
HMIS	**Health hazards** - 2	**Flammability** - 0	**Physical Hazards** - 0	**Personal protection** - X - See section 8 for more information

Key or legend to abbreviations and acronyms used in the safety data sheet

NIOSH IDLH	*Immediately Dangerous to Life or Health*
ACGIH	ACGIH (American Conference of Governmental Industrial Hygienists)
NDF	*no data*

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

Prepared By	Hach Product Compliance Department
Issue Date	09-Jan-2017
Revision Date	21-Feb-2018
Revision Note	None

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

End of Safety Data Sheet

Safety Data Sheet
(CONNTECT 6000)

1 – PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:..... CONNTECT 6000
CHEMICAL NAME/
CLASS/SYNONYMS: None
PRODUCT NUMBER: ..... CONNTECT 6000
UN/NA NUMBER: ..... None
CHEMICAL FAMILY: ..... Compounds, Cleaning Liquid
CAS NUMBER: ..... Blend
FORMULA: ..... Proprietary

COMPANY: ..... **CONNTECT, Inc.**
304 Federal Road , Suite 206 – Brookfield, CT, 06804
Phone (203) 775-8445, Fax (203) 775-9339
www.conntect.com
EMERGENCY PHONE: ..... (800) 255-3924, Outside USA +01-813-248-0585 (CHEMTEL). Contract #: MIS0002833.
DATE PREPARED:..... January 15, 2016

2 – HAZARDS IDENTIFICATION

GHS HAZARD CLASSIFICATION:

Physical Hazards
Flammable Liquids: ..... . No hazard statement
Health Hazards
Acute Toxicity (Oral):..... . Category 4 - Harmful if swallowed, in contact with skin, inhaled
Skin Corrosion/Irritation:..... . Catagory 2 - Causes skin irritation
Serious Eye Damage/Irritation: Catagory 2A - Causes eye irritation
Aspiration Hazard: ..... . Not classified

WARNING LABEL ITEMS INCLUDING PRECAUTIONARY STATEMENTS:

Pictograms:

SIGNAL WORD: ..... WARNING!

GHS HAZARD AND PRECAUTIONARY STATEMENTS:

H303 H313 H333: May be harmful if swallowed, in contact with skin or if inhaled

P101+102+103: If medical advice is needed, have product container or label at hand. Keep out of the reach of children. Read label before use.

P202+270+280+281: Do not handle until all safety precautions have been read and understood. Do not eat, drink or smoke when using this product.. Wear protective gloves/protective clothing/eye protection/face protection. Use personal protective equipment as required.

TOTAL VOC's: < 10%

3 – COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENT	PERCENT	CAS NUMBER
Ethylene Glycol Monobutyl Ether	10 - 20	111-76-2
Ethoxylated Alcohols C_9 - C_{11}	20 - 40	68439-46-3
Deionized Water	60 - 70	7732-18-5

4 – FIRST-AID MEASURES

BREATHING (INHALATION): Remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial resuscitation. Keep person warm and at rest. Treat symptomatically and supportively. Seek medical attention immediately. Qualified medical personnel should consider administering oxygen.

SWALLOWING (INGESTION): Give large amounts of fresh water or milk immediately. Do not give anything by mouth if person is unconscious or otherwise unable to swallow. If vomiting occurs, keep head below hips to prevent aspiration. Treat symptomatically and supportively. Seek medical attention immediately.

EYES: ..... Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

SKIN (DERMAL): ..... Remove contaminated clothing and wash affected skin with soap and water. If persistent irritation occurs, obtain medical attention. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop.

NOTE TO PHYSICIAN: ..... All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

5 – FIRE-FIGHTING MEASURES

GENERAL FIRE HAZARDS:.... Water based blend - Non Flammable

AUTOIGNITION TEMP: None - Water based material

EXTINGUISHING MEDIA: Determined by surrounding material. In case of fire, use water fog, dry chemical, CO_2, or "alcohol" foam.

SPECIAL FIRE FIGHTING PROCEDURES: Spilled product on ground may be slippery.

UNUSUAL FIRE AND EXPLOSION HAZARDS: ..... Containers may explode from internal pressure if confined to fire. Cool with water spray.

6 – ACCIDENTAL RELEASE MEASURES

SPILL PROCEDURES: ..... Wear appropriate personal protective equipment before approaching spill site. For small spills, dilute with water to sewer if allowed by local and state

regulations. If unable to wash product with water, absorb with inert material (sand or other approved material) and dispose of in accordance with applicable regulations.

WASTE DISPOSAL: ..... Treatment, storage, transportation and disposal must be in accordance with Federal, State/Provincial and Local Regulations. Regulations may vary in different locations. Characterization and compliance with applicable laws are the responsibility solely of the generator. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

RCRA STATUS: If discarded in its purchased form, it is not a RCRA hazardous waste. It is the responsibility of the product user to determine at the time of disposal, whether a material containing the product should be classified as a hazardous waste. (40CFR261.20-24).

7 – HANDLING and STORAGE

STORAGE: Keep in a tightly closed container, stored in a cool, dry, ventilated area below 44°C (110°F). Protect against physical damage. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product. Drum must not be washed out or used for other purposes.

HANDLING: ..... Avoid contact with eyes, skin and clothing. Do not inhale vapors and fumes. Wash thoroughly after handling. Use only with adequate ventilation. Do not take internally. For industrial use only.

8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS

HAZARDOUS INGREDIENT	PEL	TLV-TWA	NOTES
Ethylene Glycol Monobutyl Ether	25 ppm	50 ppm	
Ethoxylated Alcohols C_9 - C_{11}	None Established	None Established	
Deionized Water	None Established	None Established	

EXPOSURE CONTROLS: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Please refer to

the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

RESPIRATORY PROTECTION: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

PROTECTIVE CLOTHING: **Eye/face protection:** Wear chemical goggles; face shield (if splashing is possible). **Skin protection:** Chemical resistant, impermeable gloves. Gloves should be tested to determine suitability for prolonged contact. Use of impervious apron and boots are recommended.

ADDITIONAL MEASURES: Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco. Safety shower and eye wash should be available close to work areas.

9 – PHYSICAL / CHEMICAL PROPERITES

BOILING POINT: ..... 212°F
FREEZING POINT: ..... 32°F
FLASHPOINT: ..... Non-flammable material
UPPER FLAME LIMIT (%):..... NA
LOWER FLAME LIMIT (%):... NA
VAPOR PRESSURE:..... ND
VAPOR DENSITY (AIR=1): ..... > 1
SPECIFIC GRAVITY: ..... 0.98 - 1.01
pH:..... 7.2 - 7.8
SOLUBILITY IN WATER:..... Complete
VOLATILITY
INCLUDING WATER: 8.3 pounds per gallon
MOLECULAR WEIGHT: ..... NA
EVAPORATION RATE:..... Similar to Water
PHYSICAL STATE:..... Liquid
COLOR:..... Blue
ODOR:..... Mild Detergent

10 – STABILITY and REACTIVITY

STABILITY:..... Stable
HAZARDOUS DECOMP.:..... Will not occur
INCOMPATIBILITY:..... Oxidizers or Oxidizing Materials.
HAZARDOUS REACTIONS: None known.

11 – TOXICOLOGICAL INFORMATION

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. **ACGIH**: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. **NTP**: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. **OSHA**: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

THRESHOLD LIMIT VALUE:. None Established for this Product
OSHA PEL: ..... None Established for this Product
LISTED CARCINOGEN: This product IS NOT listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest editions) or found to be a potential carcinogen by OSHA.
MEDICAL CONDITION AGGRAVATED: Existing dermatitis.

INFORMATION ON ACUTE TOXICOLOGICAL EFFECTS

ORAL
Product: ..... No Data Available
DERMAL
Product: ..... Skin contact may aggravate existing dermatitis.
INHALATION
Product: ..... No Data Available
REPEATED DOSE TOXICITY
Product: ..... No Data Available
SKIN CORROSION / IRRITATION
Product: ..... Repeated and prolonged exposure to concentrated material may cause dermatitis.
SERIOUS EYE DAMAGE / IRRITATION
Product: ..... May cause mild to severe eye irritation
RESPIRATORY OR SKIN SENSITIZATION
Product: ..... No Data Available

MUTAGENCITY

IN VITRO
Product: ..... No Data Available
IN VIVO
Product: ..... No Data Available

Specified Substance(s)	**Information as provided by manufacturer**
Ethylene Glycol Monobutyl Ether	No Data Available

CARCINOGENICITY
Product: ..... Based on available data the classification criteria are not met. Not classified as hazardous.

REPODUCTIVE TOXICITY

Product: ..... Based on available data the classification criteria are not met. Not classified as hazardous.

SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE

Product: ..... Not classified

SPECIFIC TARGET ORGAN TOXICITY – REPEATED EXPOSURE

Product: ..... Not classified

ASPIRATION HAZARD

Product: ..... Droplets of the product aspirated into the lungs through ingestion or vomiting may cause chemical pneumonia.

OTHER ADVERSE EFFECTS

Product: ..... No data available

12 – ECOLOGICAL INFORMATION

ACUTE TOXICITY

FISH

Product: ..... No data available

AQUATIC INVERTEBRATES

Product: ..... No data available

CHRONIC TOXICITY

FISH

Product: ..... No data available

AQUATIC INVERTEBRATES

Product: ..... No data available

TOXICITY TO AQUATIC PLANTS

Product: ..... No data available

PERSISTENCE AND DEGRADABILITY

BIODEGRADATION

Product: ..... Biodegradability under aerobic static laboratory conditions is high (BOD20 or BOD28 / THOD greater than 80%).

BIOLOGICAL OXYGEN DEMAND

Product: .....

CHEMICAL OXYGEN DEMAND

Product: ..... No data available

BOD / COD RATIO

Product: ..... No data available

BIOACCUMULATIVE POTENTIAL

Product: ..... Potential to bioaccumate is low.

MOBILITY IN SOIL

Product: ..... Expected to partition to water.

RESULTS OF PBT AND mPvB ASSESSMENT

Product: ..... Not fulfilling PBT (persistent/bioaccumulative/toxic) criteria. Not fulfilling vPvB (very persistent, very bioaccumulative) criteria.

OTHER ADVERSE EFFECTS

Product: ..... No data available

13 –DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: ..... Treatment, storage, transportation and disposal must be in accordance with Federal, State/Provincial and Local Regulations. Regulations may vary in different locations. Characterization and compliance with applicable laws are the responsibility solely of the generator. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

RCRA STATUS: If discarded in its purchased form, it is not a RCRA hazardous waste. It is the responsibility of the product user to determine at the time of disposal, whether a material containing the product should be classified as a hazardous waste. (40CFR261.20-24).

14 – TRANSPORTATION INFORMATION

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

PROPER SHIPPING NAME: Non-Regulated
UN/NA NUMBER: ..... None
HAZARD CLASS: ..... None
LETTER: ..... None
PACKAGING GROUP : ..... None
ENVIRONMENTAL HAZARD: Because of modern treatment methods or method of use of this product, only an insignificant amount of the ingredients reaches the environment. That amount is at such levels as to typically not cause any adverse effects.
REPORTABLE QUANTITY: .... None

15 - REGULATIONS

This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements and the International Chemical Safety Cards of the Global Harmonizing System. This SDS complies with 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD). **IMPORTANT:** Read this SDS before handling & disposing of this product. Pass this information on to employees, customers, & users of this product.

EPA SRA Title III Chemical Listings:

TSCA STATUS: ..... This product is listed on the TSCA inventory. If this product is a blend, all ingredients in the product are listed on the TSCA Inventory List. Any impurities present in this product are exempt from listing.
SECTION 302: ..... None
SECTION 304: ..... None
SECTION 312: ..... None

ACUTE: ..... Yes (Eyes)
CHRONIC: ..... No

FIRE: ..... No
PRESSURE: ..... No
REACTIVE: ..... No
SARA SECTION 313: ..... None
CLEAN WATER ACT: ..... None

IMDG – International Marine Dangerous Goods Code
Class Non Regulated - Possible Shipping Description(s): Non Regulated
IATA
Class Non Regulated - Possible Shipping Description(s): Non Regulated

DEA Chemical Trafficking Act:. No

16 – OTHER INFORMATION

HMIS*

HEALTH	1
FLAMMABILITY	0
REACTIVITY	0
PERSONAL PROTECTION	B

**HMIS®HAZARD INDEX: 0=Minimal Hazard, 1=Slight Hazard, 2=Moderate Hazard, 3=Serious Hazard, 4=Severe Hazard. HMIS® rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this SDS and product label must be considered.*

ND = No Data, NA = Not Applicable/Not Available, ≤ = Less than or equal to, ≥ = Greater than or equal to

REVISION STATEMENT: Changes have been made throughout this Safety Data Sheet (SDS). Please read the entire document. Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and The Globally Harmonized System of Classification and Labeling of Chemicals (GHS) by the Company Health and Risk Assessment Unit.

DISCLAIMER:
Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, the Company makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving this Safety Data Sheet (SDS) will make their own determination as to its suitability for their intended purposes prior to use. Since the product is within the exclusive control of the user, it is the user's obligation to determine the conditions of safe use of this product. Such conditions should comply with all Federal and State Regulations concerning the Product. It must be recognized that the physical and chemical properties of any product may not be fully understood and that new, possibly hazardous products may arise from reactions between chemicals. The information given in this data sheet is based on our present knowledge and shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. **NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.**

*****This is the last page of this SDS*****

NALCO Water
An Ecolab Company

SAFETY DATA SHEET

ELIMIN-OX™

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	ELIMIN-OX™
Other means of identification	:	Not applicable.
Recommended use	:	OXYGEN SCAVENGER
Restrictions on use	:	Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.
Company	:	Nalco Company 1601 W. Diehl Road Naperville, Illinois 60563-1198 USA TEL: (630)305-1000
Emergency telephone number	:	(800) 424-9300 (24 Hours) CHEMTREC
Issuing date	:	07/27/2018

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Skin sensitization : Category 1

GHS Label element

Hazard pictograms :

Signal Word : Warning

Hazard Statements : May cause an allergic skin reaction.

Precautionary Statements : **Prevention:**
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/ eye protection/ face protection.
Response:
IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/ attention. Wash contaminated clothing before reuse.
Disposal:
Dispose of contents/ container to an approved waste disposal plant.

Other hazards : None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : Mixture

Chemical Name	CAS-No.	Concentration: (%)
Modified amino compound	Proprietary	5 - 10

Section: 4. FIRST AID MEASURES

In case of eye contact	:	Rinse with plenty of water. Get medical attention if symptoms occur.
In case of skin contact	:	Wash off immediately with plenty of water for at least 15 minutes. Use a mild soap if available. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
If swallowed	:	Rinse mouth. Get medical attention if symptoms occur.
If inhaled	:	Get medical attention if symptoms occur.
Protection of first-aiders	:	In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.
Notes to physician	:	Treat symptomatically.
Most important symptoms and effects, both acute and delayed	:	See Section 11 for more detailed information on health effects and symptoms.

Section: 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	None known.
Specific hazards during firefighting	:	Not flammable or combustible.
Hazardous combustion products	:	Carbon oxides nitrogen oxides (NOx)
Special protective equipment for firefighters	:	Use personal protective equipment.
Specific extinguishing methods	:	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

Section: 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Do not allow contact with soil, surface or ground water.

Methods and materials for containment and cleaning up	:	Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Flush away traces with water.

Section: 7. HANDLING AND STORAGE

Advice on safe handling	:	Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation.
Conditions for safe storage	:	Keep out of reach of children. Keep container tightly closed. Store in suitable labelled containers.
Suitable material	:	Keep in properly labelled containers.
Unsuitable material	:	The following compatibility data is suggested based on similar product data and/or industry experience: Shipping and long term storage compatibility with construction materials can vary; we therefore recommend that compatibility is tested prior to use.

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures	:	Effective exhaust ventilation system. Maintain air concentrations below occupational exposure standards.

Personal protective equipment

Eye protection	:	Safety glasses
Hand protection	:	Wear the following personal protective equipment: butyl-rubber Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Skin protection	:	Wear suitable protective clothing.
Respiratory protection	:	No personal respiratory protective equipment normally required. In the case of vapour formation use a respirator with an approved filter.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquid
Colour	:	colourless

Odour	:	odourless
Flash point	:	Will not burn: inorganic or water-based product
pH	:	8.5 - 10,(1 %), Method: ASTM E 70
Odour Threshold	:	no data available
Melting point/freezing point	:	Freezing Point: -2 °C
Initial boiling point and boiling range	:	no data available
Evaporation rate	:	no data available
Flammability (solid, gas)	:	no data available
Upper explosion limit	:	no data available
Lower explosion limit	:	no data available
Vapour pressure	:	12 mm Hg, (20 °C),
Relative vapour density	:	no data available
Relative density	:	1.02, (20 °C),
Density	:	8.5 - 8.6 lb/gal
Water solubility	:	completely soluble
Solubility in other solvents	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	no data available
Thermal decomposition	:	no data available
Viscosity, dynamic	:	2.9 mPa.s (15.6 °C)
Viscosity, kinematic	:	no data available
Molecular weight	:	no data available
VOC	:	no data available

Section: 10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Conditions to avoid	:	At temperatures below 4 °C (40 °F), this product loses its stability and forms precipitates. Once formed, the precipitate cannot be resolubilized and loss of product activity will occur. Storage temperature must be above 58 °F (14 °C) and below 90 °F (32 °C) to prevent crystallization at low temperatures and instability at high temperatures.
Incompatible materials	:	None known.
Hazardous decomposition products	:	In case of fire, hazardous decomposition products may be produced such as: Carbon oxides

nitrogen oxides (NOx)

Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation, Eye contact, Skin contact

Potential Health Effects

Eyes : Health injuries are not known or expected under normal use.

Skin : May cause allergic skin reaction.

Ingestion : Health injuries are not known or expected under normal use.

Inhalation : Health injuries are not known or expected under normal use.

Chronic Exposure : Health injuries are not known or expected under normal use.

Experience with human exposure

Eye contact : No symptoms known or expected.

Skin contact : Redness, Irritation, Allergic reactions

Ingestion : No symptoms known or expected.

Inhalation : No symptoms known or expected.

Toxicity

Product

Acute oral toxicity : LD50 rat: > 5,000 mg/kg
Test substance: Product

Acute inhalation toxicity : no data available

Acute dermal toxicity : LD50 rabbit: > 2,000 mg/kg
Test substance: Product

Skin corrosion/irritation : Species: Rabbit
Result: 0.2
Method: Draize Test
Test substance: Product

Serious eye damage/eye irritation : Species: rabbit
Result: 0.3
Method: Draize Test
Test substance: Product

Respiratory or skin sensitization : no data available

Carcinogenicity : no data available

Reproductive effects : no data available

Germ cell mutagenicity : no data available

Teratogenicity	:	no data available
STOT - single exposure	:	no data available
STOT - repeated exposure	:	no data available
Aspiration toxicity	:	no data available

Section: 12. ECOLOGICAL INFORMATION

Ecotoxicity

Environmental Effects : This product has no known ecotoxicological effects.

Product

Toxicity to fish : LC50 Oncorhynchus mykiss (rainbow trout): 360 mg/l
Exposure time: 96 hrs
Test substance: Product

LC50 Lepomis macrochirus (Bluegill sunfish): 190 mg/l
Exposure time: 96 hrs
Test substance: Product

LC50 Pimephales promelas (fathead minnow): 400 mg/l
Exposure time: 96 hrs
Test substance: Product

NOEC Pimephales promelas (fathead minnow): 100 mg/l
Exposure time: 96 hrs
Test substance: Product

Toxicity to daphnia and other aquatic invertebrates : LC50 Daphnia magna (Water flea): 96 mg/l
Exposure time: 48 hrs
Test substance: Product

NOEC Daphnia magna (Water flea): 20 mg/l
Exposure time: 48 hrs
Test substance: Product

Toxicity to algae : EC50 Skeletonema costatum (marine diatom): 4.4 mg/l
Exposure time: 72 hrs
Test substance: Active Substance

Components

Toxicity to bacteria : Modified amino compound
230 mg/l

Components

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Modified amino compound
NOEC: 0.98 mg/l
Exposure time: 7 d

Persistence and degradability

The organic portion of this preparation is expected to be readily biodegradable.

Chemical Oxygen Demand (COD): 24,000 mg/l

Mobility

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	:	<5%
Water	:	30 - 50%
Soil	:	50 - 70%

The portion in water is expected to be soluble or dispersible.

Bioaccumulative potential

This preparation or material is not expected to bioaccumulate.

Other information

no data available

Section: 13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

Disposal methods	:	Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.
Disposal considerations	:	Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

The presence of an RQ component (Reportable Quantity for U.S. DOT) in this product causes it to be regulated with an additional description of RQ for road, or as Environmentally hazardous for road and air, ONLY when the net weight in the package exceeds the calculated RQ for the product.

Land transport (DOT)

Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical name(s)	:	Hydrazine
UN/ID No.	:	UN 3082

Transport hazard class(es)	:	9
Packing group	:	III
Reportable Quantity (per package)	:	10,000 lbs
RQ Component	:	Hydrazine

Air transport (IATA)

Proper shipping name	:	PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Sea transport (IMDG/IMO)

Proper shipping name	:	PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Section: 15. REGULATORY INFORMATION

TSCA list	:	No substances are subject to a Significant New Use Rule. No substances are subject to TSCA 12(b) export notification requirements.
SARA 311/312 Hazards	:	Acute Health Hazard
SARA 302	:	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313	:	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop 65
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

INTERNATIONAL CHEMICAL CONTROL LAWS :

United States TSCA Inventory
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

Australia. Industrial Chemical (Notification and Assessment) Act
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

Canadian Domestic Substances List (DSL)
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

Japan. ENCS - Existing and New Chemical Substances Inventory
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

Korea. Korean Existing Chemicals Inventory (KECI)
All substances in this product comply with the Chemical Control Act (CCA) and are listed on the Existing Chemicals List (ECL)

Philippines Inventory of Chemicals and Chemical Substances (PICCS)

All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

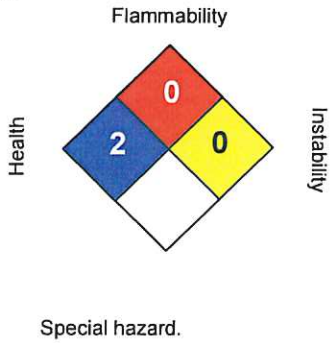
China Inventory of Existing Chemical Substances
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

Taiwan Chemical Substance Inventory
All substances in this product comply with the Taiwan Existing Chemical Substances Inventory (ECSI).

Section: 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date	:	07/27/2018
Version Number	:	1.8
Prepared By	:	Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
For additional copies of an SDS visit www.nalco.com and request access.

ThermoFisher SCIENTIFIC

SAFETY DATA SHEET

Creation Date 24-Aug-2009 **Revision Date** 18-Jan-2018 **Revision Number** 5

1. Identification

Product Name Hydrochloric acid

Cat No. : A142-212; A142P-19; A142P-20

Synonyms Muriatic acid

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Corrosive to metals	Category 1
Skin Corrosion/irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Danger

Hazard Statements
May be corrosive to metals
Causes severe skin burns and eye damage
May cause respiratory irritation

Precautionary Statements
Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Keep only in original container
Response
Immediately call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Spills
Absorb spillage to prevent material damage
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Store in corrosive resistant polypropylene container with a resistant inliner
Store in a dry place
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Water	7732-18-5	62-65
Hydrochloric acid	7647-01-0	35-38

4. First-aid measures

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation
Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion
Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms and effects
Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Notes to Physician
Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Corrosive Material. Causes burns by all exposure routes. Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products
Hydrogen chloride gas
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	0	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Do not get in eyes, on skin, or on clothing.

Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Do not ingest.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Hydrochloric acid	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m³ (Vacated) Ceiling: 5 ppm (Vacated) Ceiling: 7 mg/m³	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m³	Ceiling: 5 ppm Ceiling: 7 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	pungent
Odor Threshold	No information available
pH	< 1
Melting Point/Range	-35 °C / -31 °F
Boiling Point/Range	57 °C / 135 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	125 mbar @ 20 °C
Vapor Density	1.27
Specific Gravity	1.18
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	1.8 mPa.s @ 15°C
Molecular Formula	HCl.H2O
Molecular Weight	36.46

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat.

Incompatible Materials Metals, Strong oxidizing agents, Bases, sodium hypochlorite, Amines, Fluorine, Cyanides, Alkaline

Hazardous Decomposition Products Hydrogen chloride gas

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions Contact with metals may evolve flammable hydrogen gas.

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Vapor LC50 Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	Not listed	Not listed
Hydrochloric acid	238 - 277 mg/kg (Rat)	> 5010 mg/kg (Rabbit)	1.68 mg/L (Rat) 1 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Causes burns by all exposure routes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed
Hydrochloric acid	7647-01-0	Not listed	Not listed	Not listed	Not listed	Not listed

IARC: (International Agency for Research on Cancer)

IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Hydrochloric acid	-	282 mg/L LC50 96 h Gambusia affinis	-	56mg/L EC50 72h Daphnia

		mg/L LC50 48 h Leucscus idus		

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN1789
Proper Shipping Name	HYDROCHLORIC ACID
Hazard Class	8
Packing Group	II

TDG

UN-No	UN1789
Proper Shipping Name	HYDROCHLORIC ACID
Hazard Class	8
Packing Group	II

IATA

UN-No	UN1789
Proper Shipping Name	Hydrochloric acid
Hazard Class	8
Packing Group	II

IMDG/IMO

UN-No	UN1789
Proper Shipping Name	Hydrochloric acid
Hazard Class	8
Packing Group	II

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Water	X	X	-	231-791-2	-		X	-	X	X	X
Hydrochloric acid	X	X	-	231-595-7	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Hydrochloric acid	7647-01-0	35-38	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Hydrochloric acid	X	5000 lb	-	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hydrochloric acid	X		-

OSHA Occupational Safety and Health Administration
Not applicable

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Hydrochloric acid	-	TQ: 5000 lb

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Hydrochloric acid	5000 lb	5000 lb

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Water	-	-	X	-	-
Hydrochloric acid	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Hydrochloric acid	0 lb STQ (anhydrous); 11250 lb STQ (37% concentration or greater)

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 24-Aug-2009
Revision Date 18-Jan-2018

Print Date	18-Jan-2018
Revision Summary	SDS sections updated. 2. 3. 11.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

GE Power
Water & Process Technologies

SAFETY DATA SHEET

HYPERSPERSE* MDC700

1. Identification

Product identifier	**HYPERSPERSE MDC700**
Other means of identification	None.
Recommended use	Membrane Deposit Control Agent
Recommended restrictions	None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Not classified.
Health hazards	Not classified.
OSHA defined hazards	Not classified.

Label elements

Hazard symbol	None.
Signal word	None.
Hazard statement	The mixture does not meet the criteria for classification.
Precautionary statement	
Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

The manufacturer lists no ingredients as hazardous according to OSHA 29 CFR 1910.1200.

Composition comments	Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.

Skin contact	Rinse skin with water/shower.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.
Most important symptoms/effects, acute and delayed	Direct contact with eyes may cause temporary irritation.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Prevent entry into waterways, sewer, basements or confined areas. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.

7. Handling and storage

Precautions for safe handling	Normal chemical handling. Avoid prolonged exposure. Use care in handling/storage.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Do not freeze. If frozen, thaw completely and mix thoroughly prior to use. Store away from incompatible materials (see Section 10 of the SDS). Store in accordance with local/regional/national/international regulation.

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection	Splash proof chemical goggles.

Skin protection	
Hand protection	Chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.
Other	Wear suitable protective clothing. Chemical resistant gloves.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Color	Light yellow to amber
Physical state	Liquid
Odor	Slight
Odor threshold	Not available.
pH (concentrated product)	4.7
pH in aqueous solution	5.4 (5% SOL.)
Melting point/freezing point	23 °F (-5 °C)
Initial boiling point and boiling range	212 °F (100 °C)
Flash point	Not applicable.
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.13
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	12 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	0 (Calculated)
Pour point	28 °F (-2 °C)
Specific gravity	1.13

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Contact with water reactive compounds may cause fire or explosion.
Conditions to avoid	Protect from freezing.
Incompatible materials	Avoid contact with strong oxidizers.
Hazardous decomposition products	Oxides of carbon, nitrogen, phosphorus, and sulphur evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Mists/aerosols may cause irritation to upper respiratory tract.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	May cause gastrointestinal irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Prolonged and repetitive exposure, depending on the route(s), may develop transient irritation on skin, eyes, ingestion tract, and/or respiratory tract.

Information on toxicological effects

Acute toxicity

Product	Species	Test Results
HYPERSPERSE MDC700 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
Inhalation		
LC50	Rat	> 20 mg/l, 4 Hour, (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not available.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not classified.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Product		Species	Test Results
HYPERSPERSE MDC700 (CAS Mixture)			
	0% Mortality	Fathead Minnow	5000 mg/L, Static Bioassay with 48-Hour Renewal, 96 hour
	LC50	Menidia beryllina (Silversides)	23100 mg/L, Static Acute Bioassay, 96 hour, (pH adjusted)
		Mysid Shrimp	13800 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)
	NOEL	Menidia beryllina (Silversides)	6250 mg/L, Static Acute Bioassay, 96 hour, (pH adjusted)
		Mysid Shrimp	6250 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)
Aquatic			
Crustacea	0% Mortality	Daphnia magna	2500 mg/L, Static Screen, 48 hour
	50% Mortality	Daphnia magna	5000 mg/L, Static Screen, 48 hour

Bioaccumulative potential

No data available.

Mobility in soil

No data available.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Environmental fate

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability

No data is available on the degradability of this product.

- **COD (mgO2/g)** 190 (calculated data)
- **BOD 5 (mgO2/g)** 9 (calculated data)
- **BOD 28 (mgO2/g)** 12 (calculated data)
- **Closed Bottle Test (% Degradation in 28 days)** 5 (calculated data)
- **TOC (mg C/g)** 70 (calculated data)

13. Disposal considerations

Disposal instructions

Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

Local disposal regulations

Dispose in accordance with all applicable regulations.

Hazardous waste code

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging

Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

Not regulated as dangerous goods.

Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory information

US federal regulations

This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical: No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130): Hazardous substance

Safe Drinking Water Act (SDWA): Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

US state regulations

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - Massachusetts RTK - Substance List

Not regulated.

US - Pennsylvania RTK - Hazardous Substances

Not regulated.

US - Rhode Island RTK

Not regulated.

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Formaldehyde (CAS 50-00-0) Listed: January 1, 1988

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date	Oct-25-2014
Revision date	Jan-19-2017
Version #	1.1
List of abbreviations	CAS: Chemical Abstract Service Registration Number TWA: Time Weighted Average STEL: Short Term Exposure Limit LD50: Lethal Dose, 50% LC50: Lethal Concentration, 50% NOEL: No Observed Effect Level COD: Chemical Oxygen Demand BOD: Biochemical Oxygen Demand TOC: Total Organic Carbon IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code ACGIH: American Conference of Governmental Industrial Hygienists TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
References:	No data available
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
Revision information	This document has undergone significant changes and should be reviewed in its entirety.
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

Safety Data Sheet

according to 1907/2006/EC, Article 31

Date Printed: 26.01.2017 Version 7 Date Reviewed: 25.01.2017

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

· **Product Identifier: Liquid Caustic Soda 50% Membrane Grade**

· **Synonyms:** Sodium Hydroxide 50%

· **Product Use:**
Strong chemical base in the manufacture of pulp and paper, textiles, drinking water, soaps and detergents.

· **Manufacturer/Supplier:**
Formosa Plastics Corporation, Texas
201 Formosa Drive
Point Comfort, TX 77978 USA
+1 (361) 987-7000
E-Mail: MSDS@fpcusa.com

· **Business Division:** Chlor-Alkali

· **Emergency Telephone Number:**
In case of a chemical emergency, contact CHEMTREC (24 hrs) at:
+1 (800) 424-9300 (United States, Canada, Puerto Rico, Virgin Islands)
+1 (703) 527-3887 (International & Maritime)

Section 2: Hazards Identification

· **Hazard Classification:**

GHS05

Skin Corr. 1A H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

· **Signal Word:** DANGER

· **Precautionary Statements:**

P260	Do not breathe mist.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331	If swallowed: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P309	If exposed or if you feel unwell:
P310	Immediately call a doctor.
P501	Dispose of contents/container in accordance with local regulations.

· **NFPA Ratings (scale 0 - 4):**

Health = 3
Fire = 0
Reactivity = 1

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according to 1907/2006/EC, Article 31

Date Printed: 26.01.2017 Version 7 Date Reviewed: 25.01.2017

Product Identifier: Liquid Caustic Soda 50% Membrane Grade

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· **Additional Information:**
If you do not understand the hazards or safety precautions described in this data sheet, contact your supervisor or safety administrator before handling this product.

Section 3: Composition/Information on Ingredients

· **Dangerous Components:**

· CAS No. Description	%
1310-73-2 sodium hydroxide	50%
Skin Corr. 1A, H314	

Section 4: First Aid Measures

· **General information:**
Rescue personnel must wear appropriate protective equipment during removal of victims from contaminated areas.

· **After Inhalation:**
Remove victim to fresh air.
Administer oxygen if breathing is difficult.
Administer artifical respiration if breathing has stopped.
Onset of symptoms may be delayed up to 48 hours.
Get immediate medical attention.

· **After Skin Contact:**
Remove contaminated clothing and shoes. Wash affected area with soap and water.
Use caution to avoid spreading contamination while washing.
Delayed skin damage is possible if product is not completely washed off.
Get immediate medical attention.

· **After Eye Contact:**
In case of accidental contact, immediately flush eyes with water.
Hold eyelids open to ensure adequate flushing.
Remove contact lenses, if present and easy to do. Continue rinsing.
Get immediate medical attention.

· **After Swallowing:**
Rinse mouth.
Administer 1-2 glasses of water to dilute ingested material.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
Get immediate medical attention.

· **Most Important Symptoms and Effects:** No further relevant information available.

Section 5: Firefighting Measures

· **Suitable Extinguishing Agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray.

· **Special Firefighting Hazards:** No special firefighting hazards expected.

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Safety Data Sheet
according to 1907/2006/EC, Article 31

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Product Identifier: Liquid Caustic Soda 50% Membrane Grade

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· **Protective Equipment:**
In the event of a fire, wear a NIOSH (USA) or CEN (EU) approved self-contained breathing apparatus (SCBA) and full protective clothing.

· **Additional Information:** Evacuate all non-essential personnel from the danger area.

Section 6: Accidental Release Measures

· **Personal Precautions, Protective Equipment and Emergency Procedures:**
In case of a spill or other accidental release of this material, contact your supervisor, safety administrator, or emergency response team immediately.
Restrict access to keep out unauthorized or unprotected personnel.
Stay upwind of spilled material.
Wear appropriate personal protective equipment during all clean-up activities. See Section 8 for more information.
Avoid inhalation and direct contact.
All clean-up personnel must be properly trained.

· **Environmental Precautions:**
Keep spilled material out of sewage/drainage systems and waterways.
This product contains a U.S. EPA Reportable Quantity (RQ) substance. If amounts exceeding the Reportable Quantity are released, notification of the National Response Center +1 (800) 424-8802 is required. See Section 15 for more information.

· **Methods for Containment and Clean-Up:**
Secure the source of the leak if conditions are safe.
Use neutralizing agent.
Collect using an appropriate absorbent material such as clay or sand.
Place waste in an appropriate container for disposal.
Use care during clean-up to avoid exposure to the material and injury from broken containers.

Section 7: Handling and Storage

· **Precautions for Safe Handling:**
When diluting, always stir the product into water, not water to product.
Do not mix with water without dilution and agitation to prevent potentially violent reaction.
Avoid inhalation and direct contact.
Wear appropriate personal protective equipment.
Do not mix with acids, ammonia, alcohol, ethers or hydrocarbons.

· **Protection Against Fires and Explosions:**
Contact with aluminum, tin, zinc or brass may form hydrogen gas.

· **Conditions for Safe Storage:**
Store in closed, properly labeled containers.
Protect containers from heat, physical damage, ignition sources and incompatible materials.
Have emergency equipment for fires and spills readily available.
Absorbs carbon dioxide. Keep container closed.
There is no specific limit on shelf-life if material is stored in a closed container.

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Safety Data Sheet
according to 1907/2006/EC, Article 31

Date Printed: 26.01.2017 Version 7 Date Reviewed: 25.01.2017

Product Identifier: Liquid Caustic Soda 50% Membrane Grade

(Contd. from Page 3)

· **Additional Information:**
If you do not understand the hazards or safety precautions described in this data sheet, contact your supervisor or safety administrator before handling this product.

Section 8: Exposure Controls/Personal Protection

· **Occupational Exposure Limits:**

1310-73-2 sodium hydroxide

PEL (USA)	Eight-Hour Value: 2 mg/m³
REL (USA)	Ceiling Limit Value: 2 mg/m³
TLV (USA)	Ceiling Limit Value: 2 mg/m³
EL (Canada)	Ceiling Limit Value: 2 mg/m³
EV (Canada)	Ceiling Limit Value: 2 mg/m³
WEL (Great Britain)	Short-Term Value: 2 mg/m³

· **Exposure Controls:** Ensure emergency eyewash and shower facilities are available.

· **General Protective and Hygienic Measures:**
Wash thoroughly after handling.
Follow all safety precautions, posted signs and warnings.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.

· **Respiratory Protection:**
An industrial hygiene risk assessment is required to determine appropriate respiratory protection.
An air-purifying respirator may be appropriate under limited exposure conditions.
Perform a respirator fit/seal check after donning.
Protection provided by air-purifying respirators is limited.
Wear a self-contained breathing apparatus (SCBA) if there is a potential for uncontrolled release, exposure levels are not known, or in other circumstances where air-purifying respirators may not provide adequate protection.

· **Hand Protection:**

Chemical resistant gloves.

Work gloves may be worn over chemical resistant gloves.
Wear a second pair of chemical resistant gloves for added protection.
Tape gloves to coveralls or suit, if worn.
Use caution when removing gloves to avoid exposure to hazardous chemicals.

· **Eye/Face Protection:**

Safety glasses with side shields.

Splash goggles/mono-goggles recommended during tasks with high potential for exposure.

· **Body Protection:**
Lab coat recommended for small scale operations.

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Product Identifier: Liquid Caustic Soda 50% Membrane Grade

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Tasks with a high probability for splashing or skin contact may require:
Chemical resistant coveralls or apron.
Heavy duty chemical resistant boots.

· **Additional Information:**
If unusual exposures are expected, an industrial hygiene review of work practices, engineering controls and personal protective equipment is recommended.

* Section 9: Physical/Chemical Properties

· **Form:**	Liquid
· **Color:**	Colorless
· **Odor:**	Odorless
· **Odor Threshold:**	Not determined.
· **pH Value at 20 °C (68 °F):**	13.7
· **Melting Point:**	5-12 °C (41-54 °F) (Freezing Point)
· **Boiling Point:**	221 °C (430 °F)
· **Flash Point:**	Not applicable.
· **Autoignition Temperature:**	Not determined.
· **Decomposition Temperature:**	Not determined.
· **Lower Explosive Limit (LEL):**	Not determined.
· **Upper Explosive Limit (UEL):**	Not determined.
· **Vapor Pressure:**	Not determined.
· **Density at 20 °C (68 °F):**	1.52 g/cm³ (12.684 lbs/gal)
· **Vapor Density:**	Not determined.
· **Evaporation Rate:**	Not determined.
· **Solubility in Water:**	Soluble.
· **Partition Coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	Not determined.

Section 10: Stability and Reactivity

· **Chemical Stability/Reactivity:** Stable if used and stored according to the specifications listed below.

· **Conditions to Avoid:**
Keep away from heat, sparks and open flames.
Keep away from incompatible materials.
Absorbs carbon dioxide. Keep container closed.

· **Possibility of Hazardous Reactions/Incompatible Materials:**
Keep away from strong oxidizers.
Keep away from halogenated compounds.
Do not mix with acids, ammonia, alcohol, ethers or hydrocarbons.

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(Contd. from Page 5)

Contact with aluminum, tin, zinc or brass may form hydrogen gas.

· **Hazardous Decomposition Products:** No data available.

Section 11: Toxicological Information

· **Acute Toxicity:** Based on available data, the classification criteria are not met.

· **Relevant LD/LC50 Values:**

1310-73-2 sodium hydroxide

Oral LD50 2000 mg/kg (rat)

· **Skin Irritation:**
Causes severe skin burns and eye damage.

· **Eye Irritation:**
Causes serious eye damage.

· **Respiratory Irritation:** Corrosive to the respiratory tract.

· **Sensitization/Allergic Reaction:** No data available.

Section 12: Ecological Information

· **Aquatic Toxicity:** No data available.

· **Persistence and Degradability:** No data available.

· **Bioaccumulative Potential:** No data available.

Section 13: Disposal Considerations

· **Disposal Instructions:**
Keep spilled material out of sewage/drainage systems and waterways.
Maximize product recovery for reuse or recycling.
Waste materials may be hazardous due to the pH/corrosivity.
Dispose of waste in accordance with applicable laws and regulations.

· **Additional Information:**
It is the responsiblity of the product user to determine at the time of disposal whether a material containing or derived from this product should be classified as hazardous waste.

Section 14: Transport Information

· **UN Number:**

· **DOT, ADR, IMDG, IATA** UN1824

· **UN Proper Shipping Name:**

· **DOT:** Sodium hydroxide solution

· **ADR:** 1824 Sodium hydroxide solution

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Safety Data Sheet
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Date Printed: 26.01.2017 Version 7 Date Reviewed: 25.01.2017

Product Identifier: Liquid Caustic Soda 50% Membrane Grade

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· **IMDG, IATA** SODIUM HYDROXIDE SOLUTION

· **Transport Hazard Class(es):**

· **DOT:**

· **Class:** 8 Corrosive substances

· **Label:** 8

· **ADR, IMDG, IATA**

· **Class:** 8 Corrosive substances

· **Label:** 8

· **Packing Group:**

· **DOT, ADR, IMDG, IATA** II

· **Environmental Hazards:** Not applicable.

· **Marine Pollutant:** No

· **Special Precautions:** Warning: Corrosive substances

· **Danger Code (Kemler):** 80

· **EMS Number:** F-A,S-B

· **Segregation Groups:** Alkalis

· **Additional Information:** Shippers must consult transportation regulations for packaging instructions, quantity limitations and other regulatory information applicable to the desired mode of transport.

· **DOT:**

· **Quantity Limitations:** On passenger aircraft/rail: 1 L
On cargo aircraft only: 30 L

· **Remarks:** This product contains a U.S. EPA Reportable Quantity (RQ) substance. If amounts exceeding the Reportable Quantity are released, notification of the National Response Center +1 (800) 424-8802 is required. See Section 15 for more information.

.

Shippers must consult transportation regulations for packaging instructions, quantity limitations and other regulatory information applicable to the desired mode of transport.

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Product Identifier: Liquid Caustic Soda 50% Membrane Grade

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· **ADR:**
· **Excepted Quantities (EQ):** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml
· **Tunnel Restriction Code:** E

· **IMDG:**
· **Limited Quantities (LQ):** 1L
· **Excepted Quantities (EQ):** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

Section 15: Regulatory Information

· **U.S. Superfund Amendments & Reauthorization Act (SARA) 355 (Extremely Hazardous Substances):**
None of the ingredients are listed.

· **U.S. Superfund Amendments & Reauthorization Act (SARA) 313 (Specific Toxic Chemical Listings):**
None of the ingredients is listed.

· **U.S. Environmental Protection Agency Reportable Quantity:**
1310-73-2 sodium hydroxide: 1,000 lbs.

· **U.S. Toxic Substances Control Act (TSCA):**
All ingredients are listed.

· **California Proposition 65 Carcinogens:**
Materials used in the manufacturing process may result in contamination with trace quantities (<0.0001%) of various metals listed under Proposition 65. Contact Formosa Plastics Corporation, U.S.A. for more information.
None of the ingredients is listed.

· **Canadian Domestic Substances List (DSL):**
All ingredients are listed.

· **Canadian Ingredient Disclosure List (limit 0.1%)**
None of the ingredients are listed.

· **Canadian Ingredient Disclosure List (limit 1%):**
1310-73-2 sodium hydroxide

· **Container Labeling According to Regulation (EC) No 1272/2008:**
The product is classified and labeled according to the CLP regulation.

· **Hazard Pictograms:**

GHS05

· **Signal Word:** DANGER

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Safety Data Sheet
according to 1907/2006/EC, Article 31

Date Printed: 26.01.2017 Version 7 Date Reviewed: 25.01.2017

Product Identifier: Liquid Caustic Soda 50% Membrane Grade

(Contd. from Page 8)

· **Hazard Statements:**
H314 Causes severe skin burns and eye damage.

· **Precautionary Statements:**

P260	Do not breathe mist.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331	If swallowed: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P309	If exposed or if you feel unwell:
P310	Immediately call a doctor.
P501	Dispose of contents/container in accordance with local regulations.

· **Directive 2012/18/EU Major Accident Hazards Involving Dangerous Substances:**

· **Annex 1 Named Dangerous Substances:** None of the ingredients are listed.

Section 16: Other Information

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Formosa Plastics Corporation, U.S.A. at the time it was prepared. Formosa Plastics Corporation, U.S.A. does not assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, Formosa Plastics Corporation, U.S.A. and its subsidiaries cannot guarantee that these are the only hazards that exist. Formosa Plastics Corporation, U.S.A. assumes no legal responsibility for loss, damage or expense arising out of, or in any way connected with, the handling, storage, use or disposal of this product.

· **Department Issuing Safety Data Sheet:** Corporate Environment, Health & Safety

· **Sources & References:**
This Safety Data Sheet conforms to regulation 1907/2006/EC (REACH). This product has been classified in accordance with European CLP regulations (1272/2008/EC) and the U.S. Hazard Communication standard (29 CFR 1910.1200).

* - Indicates that data has been updated from the previous version.

Sodium Hydroxide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 07/06/1998 Revision date: 02/21/2018 Supersedes: 10/14/2013 Version: 1.1

SECTION 1: Identification

1.1. Identification

Product form	:	Substance
Substance name	:	Sodium Hydroxide
CAS-No.	:	1310-73-2
Product code	:	LC23900
Formula	:	NaOH
Synonyms	:	anhydrous caustic soda / caustic alkali / caustic flake / caustic soda, solid / caustic white / caustic, flaked / hydrate of soda / hydroxide of soda / LEWIS red devil lye / soda lye / sodium hydrate / sodium hydroxide, pellets

1.2. Recommended use and restrictions on use

Use of the substance/mixture	:	Industrial use
Recommended use	:	Laboratory chemicals
Restrictions on use	:	Not for food, drug or household use

1.3. Supplier

LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number

Emergency number	:	CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Skin corrosion/irritation, Category 1A	H314	Causes severe skin burns and eye damage.
Serious eye damage/eye irritation, Category 1	H318	Causes serious eye damage.
Hazardous to the aquatic environment — Acute Hazard, Category 3	H402	Harmful to aquatic life

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labelling

Hazard pictograms (GHS-US) :

GHS05

Signal word (GHS-US)	:	Danger
Hazard statements (GHS-US)	:	H314 - Causes severe skin burns and eye damage. H402 - Harmful to aquatic life
Precautionary statements (GHS-US)	:	P260 - Do not breathe dust, vapours. P264 - Wash exposed skin thoroughly after handling. P273 - Avoid release to the environment. P280 - Wear eye protection, face protection, protective clothing, protective gloves. P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 - Immediately call a POISON CENTER/doctor

P363 - Wash contaminated clothing before reuse.
P405 - Store locked up.
P501 - Dispose of contents/container to Comply with applicable regulations

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%	GHS-US classification
Sodium Hydroxide (Main constituent)	(CAS-No.) 1310-73-2	100	Skin Corr. 1A, H314 Eye Dam. 1, H318 Aquatic Acute 3, H402

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Wipe off dry product from skin. Remove clothing before washing. Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Do not give activated charcoal. Do not give chemical antidote. Immediately consult a doctor/medical service. Call Poison Information Centre (www.big.be/antigif.htm). Ingestion of large quantities: immediately to hospital. Take the container/vomit to the doctor/hospital.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation : WHEN PROCESSED: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. ON CONTINUOUS EXPOSURE/CONTACT: Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible oedema of the upper respiratory tract. Possible laryngeal spasm/oedema. Risk of lung oedema.

Symptoms/effects after skin contact : Blisters. Caustic burns/corrosion of the skin. Slow-healing wounds.

Symptoms/effects after eye contact : Corrosion of the eye tissue. Permanent eye damage.

Symptoms/effects after ingestion : Dry/sore throat. Nausea. Abdominal pain. Blood in vomit. Difficulty in swallowing. Possible esophageal perforation. Burns to the gastric/intestinal mucosa. Bleeding of the gastrointestinal tract. Shock.

Chronic symptoms : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Dry skin. Skin rash/inflammation. Possible inflammation of the respiratory tract. Gastrointestinal complaints.

4.3. Immediate medical attention and special treatment, if necessary

Obtain medical assistance.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Adapt extinguishing media to the environment for surrounding fires.

5.2. Specific hazards arising from the chemical

Fire hazard : DIRECT FIRE HAZARD: Non combustible. INDIRECT FIRE HAZARD: Reactions involving a fire hazard: see "Reactivity Hazard".

Explosion hazard : INDIRECT EXPLOSION HAZARD: Reactions with explosion hazards: see "Reactivity Hazard".

Reactivity : May be corrosive to metals. Absorbs the atmospheric CO2. Violent to explosive reaction with (some) acids. Reacts violently with many compounds: heat release resulting in increased fire or explosion risk. Violent exothermic reaction with water (moisture): release of corrosive mist. Reacts exothermically on exposure to water (moisture) with combustible materials: risk of spontaneous ignition.

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. When cooling/extinguishing: no water in the substance. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.

Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Absorb spillage to prevent material damage. Dike and contain spill.

6.1.1. For non-emergency personnel

Protective equipment : Gloves. Face-shield. Corrosion-proof suit. Dust cloud production: compressed air/oxygen apparatus. Contact with moisture/water: compressed air/oxygen apparatus. Contact with moisture/water: gas-tight suit.

Emergency procedures : Mark the danger area. Prevent dust cloud formation. Corrosion-proof appliances. Keep containers closed. Avoid ingress of water in the containers. Wash contaminated clothes. On contact with moisture/water: keep upwind. On contact with moisture/water: consider evacuation. In case of hazardous reactions: keep upwind. In case of reactivity hazard: consider evacuation.

Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection. Do not breathe dust.

Emergency procedures : Stop release.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment : Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam up the solid spill. Hazardous reaction: measure explosive gas-air mixture. Reaction: dilute combustible gas/vapour with water curtain.

Methods for cleaning up : Collect the spill only if it is in a dry state. Wetted substance: cover with powdered limestone or dry sand, earth, vermiculite. Scoop solid spill into closing containers. Under controlled conditions: neutralize leftovers with dilute acid solution. Possible violent reaction if you neutralize. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid raising dust. Avoid contact of substance with water. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Keep the substance free from contamination. Use corrosionproof equipment. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain.

Hygiene measures	: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse. Separate working clothes from town clothes. Launder separately.

7.2. Conditions for safe storage, including any incompatibilities

Incompatible products	: combustible materials. metals. Strong acids. Strong oxidizers. Protect from moisture.
Incompatible materials	: incompatible materials. Moisture. Heat sources.
Storage temperature	: 20 °C
Heat and ignition sources	: KEEP SUBSTANCE AWAY FROM: heat sources.
Prohibitions on mixed storage	: KEEP SUBSTANCE AWAY FROM: combustible materials. oxidizing agents. (strong) acids. metals. organic materials. water/moisture.
Storage area	: Store in a dry area. Keep container in a well-ventilated place. Keep locked up. Unauthorized persons are not admitted. Store at ambient temperature. Keep only in the original container. Meet the legal requirements.
Special rules on packaging	: SPECIAL REQUIREMENTS: hermetical. watertight. corrosion-proof. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	: SUITABLE MATERIAL: stainless steel. nickel. polyethylene. paper. MATERIAL TO AVOID: lead. aluminium. copper. tin. zinc. bronze. textile.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Sodium Hydroxide (1310-73-2)		
ACGIH	ACGIH Ceiling (mg/m³)	2 mg/m³
OSHA	OSHA PEL (TWA) (mg/m³)	2 mg/m³
IDLH	US IDLH (mg/m³)	10 mg/m³
NIOSH	NIOSH REL (ceiling) (mg/m³)	2 mg/m³

8.2. Appropriate engineering controls

Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Safety glasses. Protective clothing. Gloves. Dust/aerosol mask with filter type P3.

Materials for protective clothing:

GIVE GOOD RESISTANCE: natural rubber. neoprene. nitrile rubber. GIVE LESS RESISTANCE: butyl rubber. polyethylene. PVA. GIVE POOR RESISTANCE: natural fibres

Hand protection:

Gloves

Eye protection:

Face shield. In case of dust production: protective goggles

Skin and body protection:

Corrosion-proof clothing. In case of dust production: head/neck protection

Respiratory protection:

Dust production: dust mask with filter type P3.
High dust production: self-contained breathing apparatus

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Crystalline solid. Crystalline powder. Little spheres. Lumps. Needles. Scales. Flakes.
Colour	:	White
Odour	:	Odourless
Odour threshold	:	No data available
pH	:	14 (5 %)
Melting point	:	323 °C
Freezing point	:	No data available
Boiling point	:	1388 °C (1013.25 hPa)
Flash point	:	Not applicable
Relative evaporation rate (butylacetate=1)	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	< 0.1 hPa (20 °C)
Relative vapour density at 20 °C	:	No data available
Relative density	:	2.13 (20 °C)
Density	:	2130 kg/m³
Molecular mass	:	40 g/mol
Solubility	:	Exothermically soluble in water. Soluble in ethanol. Soluble in methanol. Soluble in glycerol. Water: 100 g/100ml (25 °C) Ethanol: soluble
Log Pow	:	No data available
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	No data available
Viscosity, kinematic	:	0.53 mm²/s (25 °C, 1 mol/l)
Viscosity, dynamic	:	0.997 mPa.s (25 °C, Test data)
Explosive limits	:	No data available
Explosive properties	:	Not applicable.
Oxidising properties	:	None.

9.2. Other information

Minimum ignition energy	:	Not applicable
Saturation concentration	:	671 g/m³
VOC content	:	Not applicable (inorganic)
Other properties	:	Translucent. Hygroscopic. Substance has basic reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

May be corrosive to metals. Absorbs the atmospheric CO2. Violent to explosive reaction with (some) acids. Reacts violently with many compounds: heat release resulting in increased fire or explosion risk. Violent exothermic reaction with water (moisture): release of corrosive mist. Reacts exothermically on exposure to water (moisture) with combustible materials: risk of spontaneous ignition.

10.2. Chemical stability

Hygroscopic. Unstable on exposure to air.

10.3. Possibility of hazardous reactions

Reacts violently with acids. Reacts violently with water.

10.4. Conditions to avoid

Moisture. Incompatible materials.

10.5. Incompatible materials

Water. Strong oxidizers. Strong acids. metals. combustible materials.

10.6. Hazardous decomposition products

Sodium oxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure	: Skin and eyes contact
Acute toxicity	: Not classified
Skin corrosion/irritation	: Causes severe skin burns and eye damage. pH: 14 (5 %)
Serious eye damage/irritation	: Causes serious eye damage. pH: 14 (5 %)
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Potential adverse human health effects and symptoms	: Causes severe skin burns. Causes serious eye damage.
Symptoms/effects after inhalation	: WHEN PROCESSED: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. ON CONTINUOUS EXPOSURE/CONTACT: Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible oedema of the upper respiratory tract. Possible laryngeal spasm/oedema. Risk of lung oedema.
Symptoms/effects after skin contact	: Blisters. Caustic burns/corrosion of the skin. Slow-healing wounds.
Symptoms/effects after eye contact	: Corrosion of the eye tissue. Permanent eye damage.
Symptoms/effects after ingestion	: Dry/sore throat. Nausea. Abdominal pain. Blood in vomit. Difficulty in swallowing. Possible esophageal perforation. Burns to the gastric/intestinal mucosa. Bleeding of the gastrointestinal tract. Shock.
Chronic symptoms	: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Dry skin. Skin rash/inflammation. Possible inflammation of the respiratory tract. Gastrointestinal complaints.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.
Ecology - air	: Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water	: Harmful to crustacea. Harmful to fishes. Groundwater pollutant. pH shift.

Sodium Hydroxide (1310-73-2)	
LC50 fish 1	45.4 mg/l (Other, 96 h, Salmo gairdneri, Static system, Fresh water, Experimental value)
EC50 Daphnia 1	40.4 mg/l (Other, 48 h, Ceriodaphnia sp., Experimental value)

12.2. Persistence and degradability

Sodium Hydroxide (1310-73-2)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable (inorganic)
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)

12.3. Bioaccumulative potential

Sodium Hydroxide (1310-73-2)	
Bioaccumulative potential	Not bioaccumulative.

12.4. Mobility in soil

Sodium Hydroxide (1310-73-2)	
Ecology - soil	No (test)data on mobility of the substance available.

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste disposal recommendations : Do not discharge into drains or the environment. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Should not be landfilled with household waste. Recycle/reuse. Dilute. Neutralize.

Additional information : Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1823 Sodium hydroxide, solid, 8, II

UN-No.(DOT) : UN1823

Proper Shipping Name (DOT) : Sodium hydroxide, solid

Transport hazard class(es) (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136

Packing group (DOT) : II - Medium Danger

Hazard labels (DOT) : 8 - Corrosive

DOT Packaging Non Bulk (49 CFR 173.xxx) : 212

DOT Packaging Bulk (49 CFR 173.xxx) : 240

DOT Special Provisions (49 CFR 172.102) : IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).
IP2 - When IBCs other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle.
IP4 - Flexible, fiberboard or wooden IBCs must be sift-proof and water-resistant or be fitted with a sift-proof and water-resistant liner.
T3 - 2.65 178.274(d)(2) Normal..... 178.275(d)(2)
TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 154

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 15 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 50 kg

DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	: 52 - Stow "separated from" acids
Other information	: No supplementary information available.

SECTION 15: Regulatory information

15.1. US Federal regulations

Sodium Hydroxide (1310-73-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Not subject to reporting requirements of the United States SARA Section 313	
RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

15.2. International regulations

CANADA

Sodium Hydroxide (1310-73-2)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Revision date : 02/21/2018

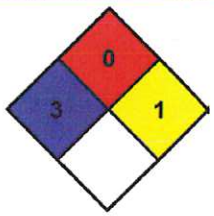
Full text of H-statements: see section 16:

H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H402	Harmful to aquatic life

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 0 - Materials that will not burn under typical dire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.



Hazard Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal protection : F

F - Safety glasses, Gloves, Synthetic apron, Dust respirator

SDS US LabChem

Information in this SDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and LabChem Inc assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his application.

Safety Data Sheet

MORTON SALT, INC.
A K+S Group Company

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name • **System Saver II Pellets; System Saver II Patented Water Softening Pellets; Clean and Protect Water Softener Pellets**

Synonyms • Pellets with System Saver(R) II Formula; System Saver(R) II Pellets

SDS Number/Grade • 1500

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified use(s) • Water conditioner ion exchange resin regeneration

1.3 Details of the supplier of the safety data sheet

Manufacturer • Morton Salt, Inc.

123 N. Wacker Drive
Chicago, IL 60606
United States

saltinfo@mortonsalt.com

Telephone (General) • 312-807-2000

1.4 Emergency telephone number

Manufacturer • 312-807-2000

Section 2: Hazards Identification

EU/EEC

According to EU Directive 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP • Not classified
Classification criteria not met

DSD/DPD • Not classified
Classification criteria not met

2.2 Label Elements

CLP

Hazard statements • No label element(s) specifically required

DSD/DPD

Risk phrases • No label element(s) specifically required

2.3 Other Hazards

CLP • According to Regulation (EC) No. 1272/2008 (CLP) this material is not considered hazardous.

DSD/DPD	• According to European Directive 1999/45/EC this preparation is not considered

dangerous.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012

- Not classified
  Classification criteria not met

2.2 Label elements

OSHA HCS 2012

Hazard statements

- No label element(s) specifically required

2.3 Other hazards

OSHA HCS2012

- This product is not considered hazardous under the U.S. OSHA 29 CFR 1910.1200 Hazard Communication Standard.

Canada

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS

- Not classified
  Classification criteria not met

2.2 Label elements

WHMIS

- No label element(s) specifically required

2.3 Other hazards

WHMIS

- In Canada, the product mentioned above is not considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

See Section 12 for Ecological Information.

Section 3 - Composition/Information on Ingredients

3.1 Substances

- Material does not meet the criteria of a substance in accordance with Regulation (EC) No 1272/2008.

3.2 Mixtures

Composition					
Chemical Name	**Identifiers**	**%**	**LD50/LC50**	**Classifications According to Regulation/Directive**	**Comments**
Sodium chloride	**CAS:**7647-14-5 **EC Number:**231-598-3	> 99%	Ingestion/Oral-Rat LD50 • 3000 mg/kg	**EU DSD/DPD:** Not Classified - Criteria not met **EU CLP:** Not Classified - Criteria not met **OSHA HCS 2012:** Not Classified - Criteria not met	NDA

Citrates	**CAS:**18996-35-5 **EINECS:**242-734-6	0.09%	NDA	**EU DSD/DPD:** Self Classified - Xi, R36/38 **EU CLP:** Self Classified - Skin Irrit. 2, H315; Eye Irrit. 2, H319 **OSHA HCS 2012:** Skin Irrit. 2; Eye Irrit. 2A	NDA
Anionic Surfactant	NDA	0.0075%	NDA	**EU DSD/DPD:** Self Classified - Xi, R41-38 **EU CLP:** Self Classified - Eye Dam. 1, H318; Skin Irrit. 2, H315 **OSHA HCS 2012:** Eye Dam 1; Skin Irrit. 2	NDA

See Section 11 for Toxicological Information. See Section 16 for full text of H-statements and R-phrases.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation
- Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing.

Skin
- IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.

Eye
- In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists: Get medical advice/attention.

Ingestion
- If large quantities are swallowed, call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician
- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media
- Material is non-combustible. In case of fire use media as appropriate for surrounding fire.

Unsuitable Extinguishing Media
- No data available.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards
- No unusual fire or explosion hazards known.

Hazardous Combustion Products
- Hazardous combustion products may include and are not limited to sulfur oxides.

5.3 Advice for firefighters

- Structural firefighters' protective clothing will only provide limited protection. Wear positive pressure self-contained breathing apparatus (SCBA).

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions
- Wear suitable protective clothing, gloves, and eye/face protection.

Emergency Procedures
- Stop leak if you can do it without risk. Keep unauthorized personnel away. Use normal clean up procedures.

6.2 Environmental precautions

- None expected to be necessary if material is used under ordinary conditions and as recommended.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Carefully shovel or sweep up spilled material and place in suitable container.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Use good safety and industrial hygiene practices. Wash thoroughly after handling. Keep out of reach of children.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Avoid storage with strong acids and strong oxidizing agents. Store in a dry place.

Incompatible Materials or Ignition Sources

- Strong oxidizing agents, strong acids.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines

- No applicable exposure limits available for product or components.

8.2 Exposure controls

Engineering Measures/Controls

- Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable threshold limit values.

Personal Protective Equipment

Respiratory

- In case of insufficient ventilation, wear suitable respiratory equipment.

Eye/Face

- Wear safety glasses.

Skin/Body

- Wear appropriate gloves.

General Industrial Hygiene Considerations

- Do not get in eyes or on skin or clothing. Handle in accordance with good industrial hygiene and safety practice.

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste.

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	White compressed pellet.
Color	White	Odor	Data lacking
Taste	Data lacking	Odor Threshold	Data lacking

Physical and Chemical Properties	Data lacking		
General Properties			

Boiling Point	2575 F(1412.7778 C)	Melting Point	801 C(1473.8 F)
Decomposition Temperature	Data lacking	pH	3.5 to 4.5
Specific Gravity/Relative Density	2.165 Water=1	Water Solubility	36 g/cc @ 68 F(20 C)
Viscosity	Data lacking	Explosive Properties	Not relevant.
Oxidizing Properties:	Not relevant.		
Volatility			
Vapor Pressure	1 mmHg (torr) @ 1589 F(865 C)	Vapor Density	Data lacking
Flammability			
Flash Point	Not relevant	UEL	Not relevant
LEL	Not relevant	Autoignition	Not relevant
Flammability (solid, gas)	Not relevant.		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Incompatible materials.

10.5 Incompatible materials

- Strong oxidizing agents, strong acids.

10.6 Hazardous decomposition products

- Will react with strong acids to generate hydrogen chloride and with strong oxidizing agents to generate chlorine gas.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

GHS Properties	Classification
Acute toxicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Aspiration Hazard	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Carcinogenicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Germ Cell Mutagenicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met

Skin corrosion/Irritation	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Skin sensitization	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
STOT-RE	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
STOT-SE	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Toxicity for Reproduction	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Respiratory sensitization	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Serious eye damage/Irritation	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met

Potential Health Effects

Inhalation

Acute (Immediate)
- Under normal conditions of use, no health effects are expected. Inhalation of dust may cause mild irritation to mucous membranes, nose and throat. Symptoms may include coughing, dryness and sore throat.

Chronic (Delayed)
- No data available.

Skin

Acute (Immediate)
- Under normal conditions of use, no health effects are expected.

Chronic (Delayed)
- No data available.

Eye

Acute (Immediate)
- Based upon practical use and experience using this product eye irritation is not expected to occur.

Chronic (Delayed)
- No data available.

Ingestion

Acute (Immediate)
- Ingestion may cause the following symptoms - diarrhea.

Chronic (Delayed)
- No data available.

Key to abbreviations

LD = Lethal Dose

Section 12 - Ecological Information

12.1 Toxicity

- Material data lacking.

12.2 Persistence and degradability

- Material data lacking.

12.3 Bioaccumulative potential

- Material data lacking.

12.4 Mobility in Soil

- Material data lacking.

12.5 Results of PBT and vPvB assessment

- No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects

- No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	NDA	Not regulated	NDA	NDA	NDA
TDG	NDA	Not regulated	NDA	NDA	NDA
IMO/IMDG	NDA	Not regulated	NDA	NDA	NDA
IATA/ICAO	NDA	Not regulated	NDA	NDA	NDA

14.6 Special precautions for user

- None known.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not relevant.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications

- None

State Right To Know				
Component	CAS	MA	NJ	PA
Sodium chloride	7647-14-5	No	No	No
Sodium citrate, dihydrate	6132-04-3	No	No	No
Stearic acid, calcium salt	1592-23-0	No	No	No
Citrates	18996-35-5	No	No	No
Anionic Surfactant	NDA	No	No	No
Sodium decyl (sulfophenoxy) benzenesulfonate	36445-71-3	No	No	No

Benzenesulfonic Acid, Oxybis	70146-13-3	No	No	No
Sodium sulfate	7757-82-6	Yes	No	Yes
Water	7732-18-5	No	No	No

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**China**	**EU EINECS**	**EU ELNICS**
Sodium chloride	7647-14-5	Yes Yes	No	Yes Yes	Yes Yes	No
Sodium citrate, dihydrate	6132-04-3	No	No	Yes	No	No
Stearic acid, calcium salt	1592-23-0	Yes	No	Yes	Yes	No
Citrates	18996-35-5	Yes	No	Yes	Yes	No
Anionic Surfactant	NDA	No	No	No	No	No
Sodium decyl (sulfophenoxy) benzenesulfonate	36445-71-3	Yes	No	Yes	Yes	No
Benzenesulfonic Acid, Oxybis	70146-13-3	Yes	No	Yes	Yes	No
Sodium sulfate	7757-82-6	Yes	No	Yes	Yes	No
Water	7732-18-5	Yes Yes	No	Yes Yes	Yes Yes	No

Inventory (Con't.)				
Component	**CAS**	**Japan ENCS**	**Korea KECL**	**TSCA**
Sodium chloride	7647-14-5	Yes Yes	Yes Yes	Yes Yes
Sodium citrate, dihydrate	6132-04-3	Yes	No	Yes
Stearic acid, calcium salt	1592-23-0	Yes	Yes	Yes
Citrates	18996-35-5	Yes	Yes	Yes
Anionic Surfactant	NDA	No	No	Yes
Sodium decyl (sulfophenoxy) benzenesulfonate	36445-71-3	Yes	Yes	Yes
Benzenesulfonic Acid, Oxybis	70146-13-3	No	Yes	Yes
Sodium sulfate	7757-82-6	Yes	Yes	Yes
Water	7732-18-5	No	Yes Yes	Yes Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Stearic acid, calcium salt	1592-23-0	Uncontrolled product according to WHMIS classification criteria
• Sodium citrate, dihydrate	6132-04-3	Uncontrolled product according to WHMIS classification criteria
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Uncontrolled product according to WHMIS classification criteria
• Sodium chloride	7647-14-5	Uncontrolled product according to WHMIS classification criteria
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

Canada - WHMIS - Ingredient Disclosure List

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

Environment

Canada - CEPA - Priority Substances List

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

Europe

Other

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed

• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

Mexico

Other

Mexico - Hazard Classifications

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

Mexico - Regulated Substances

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

United States -California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed

• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	(solution)
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

• Stearic acid, calcium salt	1592-23-0	Not Listed
• Sodium citrate, dihydrate	6132-04-3	Not Listed
• Sodium decyl(sulfophenoxy)benzenesulfonate	36445-71-3	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Citrates	18996-35-5	Not Listed
• Benzenesulfonic Acid, Oxybis	70146-13-3	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date
- 14/Nov/2016

Preparation Date
- 4/Jan/2010

Disclaimer/Statement of Liability
- The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information

contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations. Nothing contained herein is to be construed as a recommendation for use in violation of any patents or of applicable laws or regulations.

Key to abbreviations

NDA = No data available

Material Safety Data Sheet

Material Name: Sodium Bicarbonate

ID: C1-184

* * * Section 1 - Chemical Product and Company Identification * * *

Part Number: Technical, Industrial, Conditioned, USP
Chemical Name: Sodium Bicarbonate
Product Use: For Commercial Use
Synonyms: Sodium hydrogen carbonate; sodium acid carbonate; carbonic acid monosodium salt; bicarbonate of soda; baking soda.

Supplier Information

Chem One Ltd.
14140 Westfair East Drive
Houston, Texas 77041-1104

Phone: (713) 896-9966
Fax: (713) 896-7540
Emergency # (800) 424-9300 or (703) 527-3887

General Comments: FOR COMMERCIAL USE ONLY; NOT TO BE USED AS A PESTICIDE.

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

* * * Section 2 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
144-55-8	Sodium Bicarbonate	99-100

Component Information/Information on Non-Hazardous Components

This product is not considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

* * * Section 3 - Hazards Identification * * *

Emergency Overview

Sodium Bicarbonate is an odorless solid, consisting of white granules or powder. Prolonged or repeated contact may cause irritation to the eyes, skin, and the respiratory system. When heated to decomposition it emits acrid smoke, fumes, and carbon dioxide. Firefighters should wear full protective equipment and clothing.

Hazard Statements

CAUTION! PROLONGED OR REPEATED CONTACT MAY CAUSE IRRITATION TO THE EYES, SKIN, AND RESPIRATORY SYSTEM. Avoid breathing dust. Do not get in eyes, on skin or on clothing. Keep container closed when not in use. Use with adequate ventilation. Wash thoroughly after handling.

Potential Health Effects: Eyes

Dusts can irritate the eyes.

Potential Health Effects: Skin

Prolonged or repeated skin contact with this product may cause mild irritation.

Potential Health Effects: Ingestion

Sodium Bicarbonate is of low oral toxicity; however, ingestion of large amounts of Sodium Bicarbonate can cause metabolic alkalosis. Symptoms of overexposure may include thirst, abdominal pain, gastroenteritis, and inflammation of the gastrointestinal tract. Distention or rupture of the gastrointestinal tract can occur, due to generation of carbon dioxide gas. Chronic ingestion of Sodium Bicarbonate in large quantity produces "rebound" in acid secretion and may also cause crystallization of phosphates in kidney leading to kidney stones. Chronic ingestion of Sodium Bicarbonate can lead to interference in the blood-clotting process.

Potential Health Effects: Inhalation

Dusts of this product can be irritating to the respiratory system. Symptoms may include coughing and choking. Chronic inhalation exposure may cause increase in mucosal flow in the nose and respiratory system airways. This symptom normally disappears after exposure ends.

HMIS Ratings: Health Hazard: 1 **Fire Hazard:** 0 **Physical Hazard:** 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

Immediately flush eyes with plenty of water for 15 minutes. If irritation develops or persists, seek medical attention immediately.

First Aid: Skin

If irritation occurs, wash gently and thoroughly with water and non-abrasive soap. If irritation persists, seek medical attention.

First Aid: Ingestion

DO NOT INDUCE VOMITING, unless directed by medical personnel. Have victim rinse mouth thoroughly with water, if conscious. Never give anything by mouth to a victim who is unconscious or having convulsions. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Contact a physician or poison control center immediately.

* * * Section 4 - First Aid Measures (Continued) * * *

First Aid: Inhalation

Remove source of contamination or move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Get immediate medical attention.

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically.

* * * Section 5 - Fire Fighting Measures * * *

Flash Point: Not available
Method Used: Not available
Upper Flammable Limit (UEL): Not available
Lower Flammable Limit (LEL): Not available
Auto Ignition: Not available
Flammability Classification: Not available
Rate of Burning: Not available

General Fire Hazards

If extremely large quantities of Sodium Bicarbonate are involved in a fire, significant levels of carbon dioxide may be generated. Soda ash (sodium carbonate), another decomposition product resulting from heating above 200 deg F, is a respiratory, skin, and eye irritant.

Hazardous Combustion Products

When heated to decomposition Sodium Bicarbonate emits acrid smoke, fumes, and carbon dioxide and sodium oxides.

Extinguishing Media

Use methods for the surrounding fire and other materials involved in the fire. Use water spray, dry chemical, carbon dioxide or foam.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self contained breathing apparatus.

NFPA Ratings: Health: 1 **Fire:** 0 **Reactivity:** 0 **Other:**
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures

Stop the flow of material, if this can be done without risk. Contain the discharged material. If sweeping of a contaminated area is necessary use a dust suppressant agent, which does not react with product (see Section 10 for incompatibility information).

Clean-Up Procedures

Wear appropriate protective equipment and clothing during clean-up. Shovel the material into waste container. Thoroughly wash the area after a spill or leak clean-up. Prevent spill rinsate from contamination of storm drains, sewers, soil or groundwater.

Evacuation Procedures

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. Keep materials which burn away from spilled material. In case of large spills, follow all facility emergency response procedures.

Special Procedures

Remove soiled clothing and launder before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

* * * Section 7 - Handling and Storage * * *

Handling Procedures

All employees who handle this material should be trained to handle it safely. Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling.

Storage Procedures

Keep container tightly closed when not in use. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Storage areas should be made of fire-resistant materials. Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers).

* * * Section 7 - Handling and Storage (Continued) * * *

Storage Procedures (continued)

Sodium Bicarbonate tablets and effervescent tablets should be stored in tightly closed containers at a temperature less than 40 deg C, preferably between 15-30 deg C. Sodium Bicarbonate injection should be stored at a temperature less than 40 deg C, preferably between 15-30 deg C; freezing should be avoided. Empty containers may contain residual particulates; therefore, empty containers should be handled with care. Never store food, feed, or drinking water in containers which held this product. Keep this material away from food, drink and animal feed. Do not store this material in open or unlabeled containers. Limit quantity of material stored.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Exposure Guidelines

A: General Product Information

No exposure guidelines have been established.

B: Component Exposure Limits

ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product's components.

The exposure limits given are for Particulates Not Otherwise Classified (PNOC).

OSHA: 15 mg/m^3 TWA (Total dust)
5 mg/m^3 TWA (Respirable fraction)
DFG MAKs 4 mg/m^3 TWA (Inhalable fraction)
1.5 mg/m^3 TWA (Respirable fraction)

Engineering Controls

Use mechanical ventilation such as dilution and local exhaust. Use a corrosion-resistant ventilation system and exhaust directly to the outside. Supply ample air replacement. Provide dust collectors with explosion vents.

PERSONAL PROTECTIVE EQUIPMENT

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132). Please reference applicable regulations and standards for relevant details.

Personal Protective Equipment: Eyes/Face

Wear safety glasses with side shields or chemical goggles. If necessary, refer to U.S. OSHA 29 CFR 1910.133.

Personal Protective Equipment: Skin

Wear appropriate work gloves for type of operation. Rubber gloves are recommended. If necessary, refer to U.S. OSHA 29 CFR 1910.138.

Personal Protective Equipment: Respiratory

None required where adequate ventilation conditions exist. If airborne concentration is high, use an appropriate respirator or dust mask. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

Personal Protective Equipment: General

Have an eyewash fountain and safety shower available in the work area. Use good hygiene practices when handling this material including changing and laundering work clothing after use.

* * * Section 9 - Physical & Chemical Properties * * *

Physical Properties: Additional Information

The data provided in this section are to be used for product safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

Appearance:	White, crystalline powder	**Odor:**	Odorless
Physical State:	Solid	**pH:**	8.3 (0.1 molar aq. soln @ 25 deg C); 8-9 (saturated soln)
Vapor Pressure:	Not applicable	**Vapor Density:**	Not applicable
Boiling Point:	Decomposes	**Freezing/Melting Point:**	50 deg C (122 deg F) [decomposes]
Solubility (H2O):	9.6 g/100g H_2O at 20 deg C	**Specific Gravity:**	2.16 @ 20 deg C
Other Solubilities:	Insoluble in alcohol	**Particle Size:**	Not available
Bulk Density:	56-62.5 lb/ft3	**Molecular Weight:**	84.01
		Chemical Formula:	NaHCO3

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

Stable in dry air at room temperature. In moist air, Sodium Bicarbonate slowly decomposes generating carbon dioxide.

Chemical Stability: Conditions to Avoid

Heat and moisture and exposure to incompatibly chemicals.

Incompatibility

Avoid contact with oxidizing agents and strong acids. Contact with monoammonium phosphate, especially in the presence of water, may cause pressure to build due to the generation of ammonia and carbon dioxide gas; moisture will accelerate this reaction. Sodium potassium alloy can result in a violent reaction with certain extinguishing agents, such as Sodium Bicarbonate. Mixtures of Sodium Bicarbonate with 2-furaldehyde can spontaneously ignite, upon exposure to air. Sodium Bicarbonate is incompatible with dopamine hydrochloride, pentazocine lactate, many alkalodial salts, aspirin and bismuth salicylate.

Hazardous Decomposition

When heated to decomposition Sodium Bicarbonate emits acrid smoke, fumes, and carbon dioxide and sodium oxides. Decomposition in water also generates carbon dioxide.

Hazardous Polymerization

Will not occur.

* * * Section 11 - Toxicological Information * * *

Acute and Chronic Toxicity

A: General Product Information

Dusts can irritate the eyes. Prolonged or repeated skin contact with this product may cause mild irritation. Sodium Bicarbonate is of low oral toxicity; however, ingestion of large amounts of Sodium Bicarbonate can cause metabolic alkalosis. Sever alkalosis may be characterized by hyperirritability and tetany. In rare cases, cerebral edema can occur. Renal failure could occur in severe cases. Other human systemic effects include urine retention, changes in potassium levels, expansion of extracellular fluid volume, nausea and vomiting. Symptoms of overexposure may include thirst, abdominal pain, gastroenteritis, and inflammation of the gastrointestinal tract. Dusts of this product can be irritating to the respiratory system. Symptoms may include coughing and choking. Presumably, inhalation or ingestion of Sodium Bicarbonate over a long period of time might result in increased serum sodium levels, possibly with increased blood pressure and water retention. Evidence indicates that chronic use of Sodium Bicarbonate can interfere with the blood clotting process and that chronic ingestion of large amounts can lead to kidney stones.

B: Component Analysis - LD50/LC50

Sodium Bicarbonate (144-55-8)

LD_{50} (Oral-Rat) 4220 mg/kg ; LD_{50} (Oral-Mouse) 3360 mg/kg

B: Component Analysis - TDLo/TCLo/LD/LDLo

Sodium Bicarbonate (144-55-8)

TDLo (Intraperitoneal-Mouse) 40 mg/kg (female 7 days post): Teratogenic effects; TDLo (Oral-Infant) 1260 mg/kg: Pulmonary system effects, KID; TDLo (Oral-Man) 20 mg/kg/5 days-intermittent: Gastrointestinal tract effects; LC (Inhalation-Rat) > 900 mg/m^3; TCLo (Inhalation-Rat) 77200 µg/kg/17 weeks

Carcinogenicity

A: General Product Information

No carcinogenicity data available for this product.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Epidemiology

Information not available.

Neurotoxicity

Information not available.

Mutagenicity

Mutation data are reported during unscheduled DNA synthesis via oral route to rats: Unscheduled DNA Synthesis (Oral-Rat) 50,400 mg/kg/4 week-continuous

Teratogenicity

Sodium Bicarbonate was not teratogenic in rats, mice, or rabbits. Sodium Bicarbonate should not be ingested during pregnancy due to the potential for sodium retention.

Other Toxicological Information

Information not available.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

No information available.

B: Aquatic Toxicity

LC_{50} (mosquito fish) 24 hours = 7700 mg/L; LC_{50} (mosquito fish) 48 hours = 7550 mg/L; LC_{50} (bluegill sunfish) 96 hours = 8250-9000 mg/L; Immobilization Threshold (*Daphnia* water flea) = 2350 mg/L; LC_{50} (mosquito fish) 24 hours = 7700 mg/L

Environmental Fate

Sodium Bicarbonate has no biological oxygen demand and will not cause oxygen depletion in aquatic environments. Persistence: If released to water, no significant effect is expected.

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Number & Descriptions

A: General Product Information

As shipped, product is not considered a hazardous waste by the EPA.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Review federal, provincial, and local government requirements prior to disposal. Disposal by controlled incineration or secure landfill may be acceptable.

* * * Section 14 - Transportation Information * * *

NOTE: The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size. Consult shipper requirements under I.M.O., I.C.A.O. (I.A.T.A.) and 49 CFR to assure regulatory compliance.

US DOT Information

Shipping Name: Non-regulated.
Hazard Class: Not Applicable
UN/NA #: Not Applicable
Packing Group: Not Applicable
Required Label(s): None
Additional Info.: None.

50th Edition International Air Transport Association (IATA):

For Shipments by Air transport: This information applies to air shipments both within the U.S. and for shipments originating in the U.S., but being shipped to a different country.

UN/NA #: UN 3077
Proper Shipping Name: Environmentally Hazardous Substance, solid, n.o.s. (Sodium Bicarbonate)
Hazard Class: 9 (Miscellaneous Dangerous Goods)
Packing Group: III
Passenger & Cargo Aircraft Packing Instruction: 911
Passenger & Cargo Aircraft Maximum Net Quantity: 400 kg
Limited Quantity Packing Instruction (Passenger & Cargo Aircraft): Y911
Limited Quantity Maximum Net Quantity (Passenger & Cargo Aircraft): 30 kg G
Cargo Aircraft Only Packing Instruction: 911
Cargo Aircraft Only Maximum Net Quantity: 400 kg
Excepted Quantities: E1
Special Provisions: A97, A158
ERG Code: 9L

Limited Quantity Shipments: Shipments for air must be marked with the Proper Shipping Name Environmentally Hazardous Substance, solid, n.o.s. (Sodium Bicarbonate) and shall be marked with the UN Number (3077) preceded by the letters "UN", placed within a diamond. The width of the line forming the diamond shall be at least 2 mm; the number shall be at least 6 mm high. The total weight of each outer packaging cannot exceed 30 kg.

Excepted Quantities: The maximum quantity of this material per inner receptacle is limited to 30 g per receptacle and the aggregate quantity of this material per completed package does not exceed 1kg. The inner receptacles must be securely packed in an intermediate packaging with cushioning material to prevent movement in the inner receptacles and packed in a strong outer box with a gross mass not to exceed 29kg. The completed package must meet a drop test. The requirements are found in 2.7.6.1. The package

must not be opened or otherwise altered until it is no longer in commerce. For air transportation no shipping paper is required. The package must be legibly marked with the following marking:

NOTE: The "*" must be replaced by the primary hazard class, or when assigned, the division of each of the hazardous materials contained in the package. The "**" must be replaced by the name of the shipper or consignee if not shown elsewhere on the package. The symbol shall be not less than 100 mm x 100 mm and must be durable and clearly visible.

International Maritime Organization (I.M.O.) Classification

I.M.O. Classification: Sodium Bicarbonate is not regulated by the I.M.O.

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

A: General Product Information

Other federal regulations may apply.

B: Component Analysis

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

SARA 302 (EHS TPQ) There are no specific Threshold Planning Quantities for Sodium Bicarbonate. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs. (4,540 kg) therefore applies, per 40 CFR 370.20.

C: Sara 311/312 Tier II Hazard Ratings:

Component	CAS #	Fire Hazard	Reactivity Hazard	Pressure Hazard	Immediate Health Hazard	Chronic Health Hazard
Sodium Bicarbonate	144-55-8	No	No	No	Yes	No

State Regulations

A: General Product Information

Other state regulations may apply.

B: Component Analysis - State

None of this product's components are listed on the state lists from CA, FL, MA, MN, NJ, or PA.

Component	CAS #	CA	FL	MA	MN	NJ	PA
Sodium Bicarbonate	144-55-8	No	No	No	No	No	No

Other Regulations

A: General Product Information

Not determined.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Sodium Bicarbonate	144-55-8	Yes	Yes	Yes

C: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Sod Sodium Bicarbonate	144-55	No disclosure limit.

ANSI Labeling (Z129.1):

CAUTION! PROLONGED OR REPEATED CONTACT MAY CAUSE IRRITATION TO THE EYES, SKIN, AND RESPIRATORY SYSTEM. Do not taste or swallow. Do not get on skin or in eyes. Avoid breathing dusts or particulates. Keep from contact with clothing. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves, goggles, faceshields, suitable body protection, and NIOSH/MSHA-approved respiratory protection, as appropriate. **FIRST-AID:** In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. **IN CASE OF FIRE:**

Use water fog, dry chemical, CO_2, or "alcohol" foam. **IN CASE OF SPILL:** Absorb spill with inert material. Place residue in suitable container. Consult Material Safety Data Sheet for additional information.

* * * Section 16 - Other Information * * *

Other Information

Other Information

Chem One Ltd. ("Chem One") shall not be responsible for the use of any information, product, method, or apparatus herein presented ("Information"), and you must make your own determination as to its suitability and completeness for your own use, for the protection of the environment, and for health and safety purposes. You assume the entire risk of relying on this Information. In no event shall Chem One be responsible for damages of any nature whatsoever resulting from the use of this product or products, or reliance upon this Information. By providing this Information, Chem One neither can nor intends to control the method or manner by which you use, handle, store, or transport Chem One products. If any materials are mentioned that are not Chem One products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed. Chem One makes no representations or warranties, either express or implied of merchantability, fitness for a particular purpose or of any other nature regarding this information, and nothing herein waives any of Chem One's conditions of sale. This information could include technical inaccuracies or typographical errors. Chem One may make improvements and/or changes in the product (s) and/or the program (s) described in this information at any time. If you have any questions, please contact us at Tel. 713-896-9966 or E-mail us at Safety@chemone.com.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration

Contact: Sue Palmer-Koleman, PhD

Revision Log

08/22/00 3:14 PM SEP Changed company name, Sect 1 and 16, from Corporation to Ltd.
05/31/01 9:31 AM HDF Checked exposure limits; made changes to Sect 9; overall review, add SARA 311/312 Haz Ratings.
08/20/01 3:10 PM CLJ Add Shipments by Air information to Section 14, Changed contact to Sue, non-800 Chemtrec Num.
09/26/03 3:25 PM HDF General review of entire MSDS. Up-graded Section 3 Health Hazard information, HMIS categories. Up-dated storage information in Section 7. Up-dated PNOC exposure limits to Section 8. Addition of currently available toxicity data to Section 11. Up-Dated Section 14 Transportation Information.
06/22/05 10:27AM SEP Update IATA Section 14
10/22/07 3:06 PM SEP Update IATA Section 14
10/15/08 9:28 AM DLY Changed Chem One Physical Address, Section 1
12/27/2010 2:21 PM SEP Update IATA

This is the end of MSDS # C1-184

BRENNTAG

SAFETY DATA SHEET

1. Identification

Product identifier	**SODIUM BISULFITE 40%**
Other means of identification	None.
Recommended use	ALL PROPER AND LEGAL PURPOSES
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	Brenntag Mid-South, Inc.	
Address	1405 Highway 136, West Henderson, KY 42420	
Telephone	270-830-1222	
E-mail	Not available.	
Emergency phone number	800-424-9300	CHEMTREC

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
Environmental hazards	Not classified.	
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	Causes severe skin burns and eye damage. Causes serious eye damage.
Precautionary statement	
Prevention	Do not breathe mist or vapor. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.
Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Wash contaminated clothing before reuse.
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
SULFURIC ACID, SODIUM SALT (1:1)		7681-38-1	40
Other components below reportable levels			60

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles) and a face shield.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.
Other	Wear appropriate chemical resistant clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Liquid.
Color	CLEAR TO HAZY YELLOW
Odor	PUNGENT SULFUR DIOXIDE
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	45 °F (7.22 °C)
Initial boiling point and boiling range	212 °F (100 °C) estimated
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	11.16 lbs/gal
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Percent volatile	60 % estimated
Specific gravity	1.34

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity	Not available.
Skin corrosion/irritation	Causes severe skin burns and eye damage.
Serious eye damage/eye irritation	Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not available.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not available.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.

Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN2693
UN proper shipping name	BISULFITES, AQUEOUS SOLUTIONS, N.O.S.
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
ERG number	154

DOT information on packaging may be different from that listed.

IMDG

Not regulated as dangerous goods.

DOT

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	03-27-2015
Revision date	03-15-2016
Version #	09
HMIS® ratings	Health: 3 Flammability: 0 Physical hazard: 0
NFPA ratings	Health: 3 Flammability: 0 Instability: 0
Disclaimer	While Brenntag believes the information contained herein to be accurate, Brenntag makes no representation or warranty, express or implied, regarding, and assumes no liability for, the accuracy or completeness of the information. The Buyer assumes all responsibility for handling, using and/or reselling the Product in accordance with applicable federal, state, and local law. This SDS shall not in any way limit or preclude the operation and effect of any of the provisions of Brenntag's terms and conditions of sale.
Revision information	This document has undergone significant changes and should be reviewed in its entirety.

SULFUR DIOXIDE
Safety Data Sheet

1. IDENTIFICATION

Product identifier
Product Name SULFUR DIOXIDE

Other means of identification
Safety data sheet number LIND-P111
UN/ID no. UN1079
Synonyms Bisulfite; Sulfurous Anhydride; Sulfurous Oxide; Sulfur Oxide; Sulphur Dioxide

Recommended use of the chemical and restrictions on use
Recommended Use Industrial and professional use.
Uses advised against Consumer use

Details of the supplier of the safety data sheet
Linde Gas North America LLC - Linde Merchant Production Inc. - Linde LLC
200 Somerset Corporate Blvd, Suite 7000
Bridgewater, NJ 08807
Phone: 908-464-8100
www.lindeus.com

Linde Gas Puerto Rico, Inc.
Road 869, Km 1.8
Barrio Palmas, Catano, PR 00962
Phone: 787-641-7445
www.pr.lindegas.com

Linde Canada Limited
5860 Chedworth Way
Mississauga, Ontario L5R 0A2
Phone: 905-501-2500/905-501-1700
www.lindecanada.com

* May include subsidiaries or affiliate companies/divisions.

For additional product information contact your local customer service.

Emergency telephone number
Company Phone Number +1 800-232-4726 (Linde National Operations Center, US) 905-501-0802 (Canada)
CHEMTREC: 1-800-424-9300 (North America) +1-703-527-3887 (International)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Acute toxicity - Inhalation (Gases)	Category 3
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Gases under pressure	Liquefied gas

Label elements

Signal word Danger

Hazard Statements
Contains gas under pressure; may explode if heated
Toxic if inhaled
Causes severe skin burns and eye damage
Corrosive to the respiratory tract

Precautionary Statements - Prevention
Do not handle until all safety precautions have been read and understood
Avoid breathing gas
Do not get in eyes, on skin, or on clothing
Use and store only outdoors or in a well ventilated place
Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection
Use a backflow preventive device in piping
Use only with equipment of compatible materials of construction and rated for cylinder pressure
Do not open valve until connected to equipment prepared for use
Close valve after each use and when empty
When returning cylinder, install leak tight valve outlet cap or plug

Precautionary Statements - Response
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician

Precautionary Statements - Storage
Store locked up
Protect from sunlight when ambient temperature exceeds 52°C/125°F

Precautionary Statements - Disposal
Dispose of contents/containers in accordance with container supplier/owner instructions

Hazards not otherwise classified (HNOC)
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Volume %	Chemical Formula
Sulfur dioxide	7446-09-5	100	SO_2

4. FIRST AID MEASURES

Description of first aid measures

General advice — Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Inhalation — Remove to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get medical attention immediately. Any physical exertion during this period should be discouraged as it may increase the severity of the pulmonary edema or chemical pneumonitis. Bed rest is indicated.

Skin contact — Immediately flush skin with plenty of water for at least 30 minutes. Remove contaminated clothing and shoes. Immediate medical attention is required.

Eye contact — Immediately flush eyes with running water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Immediate medical attention is required.

Ingestion — Not an expected route of exposure.

Self-protection of the first aider — RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Use personal protective equipment. Avoid contact with skin, eyes and clothing.

Most important symptoms and effects, both acute and delayed

Symptoms — Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Chemical pneumonitis and pulmonary edema result from exposure to the lower respiratory tract and deep lung. Residual pulmonary malfunction might occur. May cause burns of eyes, skin and mucous membranes.

Indication of any immediate medical attention and special treatment needed

Note to physicians — Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific extinguishing methods
Continue to cool fire exposed cylinders until flames are extinguished. Damaged cylinders should be handled only by specialists.

Specific hazards arising from the chemical
Non-flammable gas. Sulfur dioxide reacts with water to form sulfuric acid. The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating and toxic gases and vapors. Cylinders may rupture under extreme heat.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear. Corrosive hazard. Wear chemically protective gloves/clothing and eye/face protection.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Keep people away from and upwind of spill/leak. Monitor concentration of released product. Use personal protection recommended in Section 8. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Other Information	Gas/vapor is heavier than air. Prevent from entering sewers, basements and workpits, or any place where accumulation may be dangerous.

Environmental precautions

Environmental precautions	Prevent spreading of vapors through sewers, ventilation systems and confined areas. Do not allow into any sewer, on the ground or into any body of water. Prevent product from entering drains. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment	Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. If leak is in container or container valve, contact the appropriate emergency telephone number in Section 1 or call your closest Linde location.
Methods for cleaning up	Return cylinder to Linde or an authorized distributor.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Most metals corrode when in contact with wet sulfur dioxide. Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for short distance, use a cart designed to transport cylinders. Never attempt to lift a cylinder by its valve protection cap. Never insert an object (e.g. wrench, screwdriver, pry bar,etc.) into valve cap openings. Doing so may damage valve, causing leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Use a backflow preventive device in piping. Use only with adequate ventilation. Use only with equipment rated for cylinder pressure. Close valve after each use and when empty. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Ensure the complete gas system has been checked for leaks before use. Never put cylinders into trunks of cars or unventilated areas of passenger vehicles. Never attempt to refill a compressed gas cylinder without the owner's written consent. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. Only experienced and properly instructed persons should handle gases under pressure. Always store and handle compressed gas cylinders in accordance with Compressed Gas Association, pamphlet CGA-P1, Safe Handling of Compressed Gases in Containers. For additional storage recommendations, consult Compressed Gas Association's Pamphlets G-3, and TB-11.

Conditions for safe storage, including any incompatibilities

Storage Conditions	Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Keep at temperatures below 52°C / 125°F. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Full and empty cylinders should be segregrated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Stored containers should be periodically checked for general condition and leakage.
Incompatible materials	Metal oxides. Alkalis.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sulfur dioxide 7446-09-5	STEL: 0.25 ppm	TWA: 5 ppm TWA: 13 mg/m³ (vacated) TWA: 2 ppm (vacated) TWA: 5 mg/m³ (vacated) STEL: 5 ppm (vacated) STEL: 15 mg/m³	IDLH: 100 ppm TWA: 2 ppm TWA: 5 mg/m³ STEL: 5 ppm STEL: 13 mg/m³

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value. OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits. NIOSH IDLH: Immediately Dangerous to Life or Health

Other Information	Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Engineering Controls	Showers. Eyewash stations. Ventilation systems. Exhaust gas should be vented to a gas treatment system. Consider installation of leak detection systems in areas of use and storage. Systems under pressure should be regularly checked for leakages.

Individual protection measures, such as personal protective equipment

Eye/face protection	Tightly fitting safety goggles. Face protection shield.
Skin and body protection	Appropriate protective and chemical resistant gloves, clothing and splash protection, or fully encapsulating vapor protective clothing to prevent exposure. For materials of construction consult protective clothing manufacturer's specifications. (Saranex® and Barricade® are effective for exposures greater than 8 hours). Work gloves and safety shoes are recommended when handling cylinders.
Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
General Hygiene Considerations	Handle in accordance with good industrial hygiene and safety practice. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Remove and wash contaminated clothing before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Compressed gas
Appearance	Colorless.
Odor	Pungent.
Odor threshold	No information available
pH	If dissolved in water, will affect pH value
Melting point	-75.5 °C / -103.9 °F
Evaporation rate	Not applicable
Lower flammability limit:	Not applicable
Upper flammability limit:	Not applicable
Flash point	No information available
Autoignition temperature	No data available
Decomposition temperature	No data available
Water solubility	Soluble in water.
Partition coefficient	No data available
Kinematic viscosity	Not applicable

Chemical Name	Molecular weight	Boiling point	Vapor Pressure	Vapor density (air =1)	Gas Density kg/m³@20°C	Critical Temperature
Sulfur dioxide	64.06	-10 °C	3200 hPa @ 20 °C	2.26	2.697	157.4 °C

10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions

Chemical stability
Stable under recommended storage conditions.

Explosion data

Sensitivity to Mechanical Impact	None.
Sensitivity to Static Discharge	None.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to avoid
Sulfur dioxide reacts violently with peroxides, chromates, bichromates, permanganates, and oxygen difluoride. It also reacts with chlorates to form chlorine, which may become explosive at elevated temperatures. Forms sulfuric acid in contact with water.

Incompatible materials
Metal oxides. Alkalis.

Hazardous Decomposition Products
Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation	The irritant actions of sulfur dioxide is believed to be caused by the formation of sulfuric acid when the gas dissolves. Bronchoconstriction caused by sulfur dioxide is concentration related. Fifteen humans which inhaled 1,5,or 25 ppm for 6 hours (nose-breathing) exhibited reduced forced expiratory volume and forced expiratory flow at all concentrations. Significant reduction in nasal mucous flow rate was seen following exposure to 5 or 25 ppm. Corrosive to respiratory system.

Skin contact	Corrosive. Causes severe irritation and or burns.
Eye contact	Corrosive to the eyes and may cause severe damage including blindness.
Ingestion	Not an expected route of exposure.

Information on toxicological effects

Symptoms	May be fatal if inhaled. Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Category 1B.
Serious eye damage/eye irritation	Category 1.
Irritation	Sulfur dioxide can cause irritation at relatively low levels (1-5 ppm); however workers may become acclimated even to initially unbearable concentrations (25 ppm). Pure sulfur dioxide may damage the skin, eyes, and mucous membranes.
Sensitization	Not classified.
Germ cell mutagenicity	Not classified. Sulfur dioxide has failed consistently to induce genetoxicity in intact rodents.
Carcinogenicity	Sulfur dioxide may act as a promotor. Substantial increase in respiratory tract squamous cell carcinomas was reported in rats following exposure to benzo[a]pyrene and sulfur dioxide at 4 or 10 ppm (1-6 H/day, 5 days/week) compared to carcinomas resulting from exposure to sulfur dioxide or benzo[a]pyrene alone. The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Sulfur dioxide 7446-09-5	-	Group 3	-	-

IARC (International Agency for Research on Cancer)
Not classifiable as a human carcinogen

Reproductive toxicity	Not classified. Experimental inhalation exposures of rats and mice at 1.5 to 32 ppm resulted in toxicity to both male and female reproductive systems. Effects included menstrual cycle changes and toxic effects to testes.
Developmental Toxicity	May be a developmental hazard based on animal data.
STOT - single exposure	Not classified.
STOT - repeated exposure	Not classified.
Chronic toxicity	Repeated exposure to sulfur dioxide has caused thickening of the mucousal layer in the trachea and increases the goblet cells and mucous glands in test animials indicating the potential for chronic respiratory disease in humans. Dogs exposed continuously for 225 days to 5 ppm exhibited decreased lung compliance and increased pulmonary flow-resistance. Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen.
Target Organ Effects	Respiratory system, Eyes, Skin.
Aspiration hazard	Not applicable.

Numerical measures of toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50	Inhalation LC50 (CGA P-20)
Sulfur dioxide 7446-09-5	-	-	= 2500 ppm (Rat) 1 h	2520 ppm (Rat) 1hr

Product Information	
Oral LD50	No information available
Dermal LD50	No information available
Inhalation LC50	No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity
Harmful to aquatic organisms. May cause pH changes in in aqueous ecological systems.

Persistence and degradability
Not applicable.

Bioaccumulation
No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes	Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to Linde for proper disposal.

14. TRANSPORT INFORMATION

DOT

UN/ID no.	UN1079
Proper shipping name	Sulfur dioxide
Hazard Class	2.3
Subsidiary class	8
Special Provisions	3, B14, T50, TP19
Description	UN1079, Sulfur dioxide, 2.3 (8)
Additional Description:	"Toxic-Inhalation Hazard Zone C"
Additional Marking Requirements:	"Inhalation Hazard"
Emergency Response Guide Number	125

UN/ID no.	UN1079
Proper shipping name	Sulfur dioxide
Hazard Class	2.3
Subsidiary class	8
Description	UN1079, Sulfur dioxide, 2.3 (8)

MEX

UN/ID no.	UN1079
Proper shipping name	Sulphur dioxide
Hazard Class	2.3
Subsidiary class	8
Description	UN1079, Sulphur dioxide, 2.3 (8)

IATA Forbidden

IMDG

UN/ID no.	UN1079
Proper shipping name	Sulphur dioxide
Hazard Class	2.3
Subsidiary hazard class	8
EmS-No.	F-C, S-U
Description	UN1079, Sulphur dioxide, 2.3 (8)

ADR

UN/ID no.	UN1079
Proper shipping name	Sulphur dioxide
Hazard Class	2.3 8
Classification code	2TC
Tunnel restriction code	(C/D)
Description	UN1079, Sulphur dioxide, 2.3 8, (C/D)
Labels	2.3 + 8

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden release of pressure hazard	Yes
Reactive Hazard	No

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Sulfur dioxide 7446-09-5	-	500 lb	-

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act Amendments of 1990.

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Risk and Process Safety Management Programs

This material, as supplied, contains one or more regulated substances with specified thresholds under 40 CFR Part 68 or regulated as a highly hazardous chemical pursuant to the 29 CFR Part 1910.110 with specified thresholds:

Chemical Name	U.S. - CAA (Clean Air Act) - Accidental Release Prevention - Toxic Substances	U.S. - CAA (Clean Air Act) - Accidental Release Prevention - Flammable Substances	U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals
Sulfur dioxide	5000 lb		1000 lb

US State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals

Chemical Name	California Proposition 65
Sulfur dioxide - 7446-09-5	Developmental

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Sulfur dioxide 7446-09-5	X	X	X

Chemical Name	Carcinogenicity	Exposure Limits
Sulfur dioxide		Mexico: TWA 2 ppm Mexico: TWA 5 mg/m³ Mexico: STEL 5 ppm Mexico: STEL 10 mg/m³

Chemical Name	NPRI
Sulfur dioxide	X

Legend
Canada NPRI - National Pollutant Release Inventory

16. OTHER INFORMATION

NFPA Health hazards 3 Flammability 0 Instability 0 Physical and Chemical Properties -

Note: Ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA Pamphlet P-19-2009, CGA Recommended Hazard Ratings for Compressed Gases, 3rd Edition.

Issue Date	25-Apr-2015
Revision Date	12-Jul-2016
Revision Note	SDS sections updated; 1

General Disclaimer
For terms and conditions, including limitation of liability, please refer to the purchase agreement in effect between Linde LLC, Linde Merchant Production, Inc. or Linde Gas North America LLC (or any of their affiliates and subsidiaries) and the purchaser.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES
Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

End of Safety Data Sheet

ALTIVIA

MATERIAL SAFETY DATA SHEET

Sulfuric Acid 93%

24 Hour Emergency Phone 1-866-ALTIVIA (258-4842)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	Sulfuric Acid 93%
CHEMICAL NAME/ FAMILY:	Acids
TRADE NAMES/ SYNONYMS:	Sulfuric Acid; Oil of Vitriol
MOLECULAR FORMULA:	H_2SO_4
MANUFACTURER OR FORMULATOR:	ALTIVIA, 1100 Louisiana, Suite 3160, Houston, TX 77002

SECTION 2: COMPOSITION/ INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS NUMBER	% RANGE
Sulfuric Acid*	7664-93-9	93%
Water	7732-18-5	7%

* Denotes chemical subject to reporting requirements of Section 313 of Title III of the 1986 Superfund Amendments and Reauthorization Act (SARA) and 40 CFR Part 372.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER! Causes severe burns. Do not get in eyes, on skin or on clothing. May be harmful if inhaled, do not breathe mist. May be fatal if swallowed. Reacts violently with water. Flammable and explosive hydrogen gas can be generated inside metal drums and storage tanks. Highly reactive and capable of igniting combustible material on contact.

POTENTIAL HEALTH EFFECTS

EYE
Liquid contact with eyes can cause irritation, corneal burns and blindness. Mist contact may irritate or burn.

SKIN
Fumes or mists may cause severe irritation or burns to skin. Skin contact with liquid sulfuric acid may cause skin corrosion, burns or ulcers.

INGESTION
Oral and gastrointestinal irritation. May cause burns of the mouth, throat, esophagus and stomach resulting in local tissue damage. Nausea, vomiting, diarrhea, and gastrointestinal bleeding, and collapse of blood pressure may follow – damage may appear days after exposure. **Can be fatal if swallowed**.

INHALATION
Irritation of the respiratory system. May cause sneezing, sore throat or runny nose; non specific effects such as headache, nausea and weakness.

SIGNS AND SYMPTOMS OF EXPOSURE
Irritation and or burns to exposed tissue, respiratory distress, nausea, vomiting or diarrhea.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Medical conditions generally aggravated are acute and chronic respiratory diseases.

EFFECTS FOLLOWING REPEATED EXPOSURE
Repeated and/ or prolonged exposure to mists may cause irritation with itching, burning, redness, swelling or rash to the skin and irritation with tearing, pain or blurred vision to they eyes. Long term exposure to high levels of acid fumes may cause erosion of teeth followed by jaw necrosis, bronchial irritation, coughing, and bronchial pneumonia, or gastrointestinal disturbances.

SECTION 4: FIRST AID MEASURES

EYES
Hold eye open and rinse slowly and gently for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention for irritation or any other symptom.

SKIN
Take off contaminated clothing and shoes. Rinse skin immediately with plenty of water for 15-20 minutes. Get immediate medical attention for irritation or burns. Wash clothing and thoroughly clean shoes before reuse.

While the patient is being transported to a medical facility, continue to the application of cold, wet compresses. If medical treatment must be delayed, repeat the flushing with cold water or soak the affected area with cold water to help remove the last traces of sulfuric acid. Creams or ointments should not be applied before or during the washing phase of treatment.

INGESTION
Call a poison control center or doctor for immediate advice. Have person drink large quantities of water immediately if able to swallow. **Do not induce vomiting** unless directed to do so by medical personnel. Do not give anything by mouth to an unconscious person.

INHALATION
Remove person from exposure to fresh air. If person is not breathing, call 911 or an ambulance, and then give artificial respiration (CPR). If individual is breathing, but with difficulty, get immediate medical attention.

NOTES TO PHYSICIAN
All treatment should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Continued washing of the affected area with cold or iced water will be helpful in removing the last traces of sulfuric acid. Creams or ointments should not be applied before or during the washing phase of treatment.

See Section 11 for Toxicological Information.

SECTION 5: FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT
Not Applicable

AUTOIGNITION TEMPERATURE
Not Applicable

FLAMMABLE LIMITS IN AIR (% BY VOLUME)
Not Applicable

FLAMMABLE PROPERTIES
Will not burn

EXTINGUISHING MEDIA
Choose extinguishing media suitable for surrounding materials. Use water spray to cool containers exposed to fire; do not get water inside containers.

HAZARDOUS COMBUSTION PRODUCTS
Flammable and explosive hydrogen gas can be generated inside metal drums and storage tanks. Concentrated acid can ignite combustible materials on contact. Acid plus active metals can form explosive concentrations of hydrogen. At high temperatures, sulfur trioxide mists may release from vented or ruptured containers.

FIRE FIGHTING INSTRUCTIONS
Use NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing if involved in a fire. Evacuate personnel to a safe area. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Move container from fire area if it can be done without risk. Avoid direct streams of water, product generates heat and may cause splattering. Do not release runoff from fire control methods to sewers or waterways. Dike area to prevent runoff and water source contamination. Neutralize run-off with lime, soda ash etc., to prevent corrosion of metals and formation of hydrogen gas.

SECTION 6: ACCIDENTAL RELEASE MEASURES

WATER SPILL
Prevent additional discharge of material, if possible to do so without hazard.

LAND SPILL
Prevent additional discharge of material, if possible to do so without hazard. For small spills implement cleanup procedures; for large spills implement cleanup procedures and, if in public area, advise authorities.

GENERAL PROCEDURES
Personnel handling this material should be thoroughly trained to handle spills and releases. Review "Fire and Explosion Hazards" and "Safety Precautions" before proceeding with clean up. Do not direct hose streams into an unignited transportation spill (tank truck or tank car).

No smoking in spill areas. Isolate spill area and deny entry to unnecessary or unprotected personnel. Remove all sources of ignition, such as flames, hot glowing surfaces or electric arcs. Stop source of spill as soon as possible and notify appropriate personnel. Cleanup personnel must wear proper protective equipment (refer to Section 8). Decontaminate all clothing. Notify all downstream water users of possible contamination.

Pump any free liquid into an appropriate closed container. Exercise caution during neutralization as considerable heat may be generated. Carefully neutralize spill with lime or soda ash, and transfer to wastewater treatment system. Prevent liquid from entering sewers, waterways, or low areas.

Small spills may also be absorbed using clay, soil or nonflammable commercial absorbents. Scrape up and place in appropriate closed container.

Do not place spill materials back in their original container. Containerize and label all spill materials properly.

RELEASE NOTES

Do not flush to drain. Notify the National Response Center (800/424/8802) of uncontained releases to the environment in excess of the Reportable Quantity (RQ). See Section 15, Regulatory Information. Recycle or dispose of recovered material in accordance with all federal, state, and local, regulations.

For all transportation accidents, call CHEMTREC at 800/424-9300.

SECTION 7: HANDLING AND STORAGE

HANDLING

Do not get in eyes, or on skin, or clothing. Do not taste or swallow. Avoid breathing mists or fumes. Do not handle with bare hands. This product reacts violently with bases and water liberating heat and causing splattering.

Carefully monitor handling, use and storage to avoid spills and leaks. Follow protective controls set forth in Section 8 when handling this product. **Do not eat, drink, or smoke in work area**. Wash hands prior to eating, drinking, or using restroom.

STORAGE

STORAGE CONDITIONS

Do not put concentrate or dilutions of concentrate on food or drink containers. Store in closed, properly labeled tanks or containers. Do not remove or deface labels or tags. Store in a cool, well ventilated place away heat sources direct sunlight and incompatible materials. DO NOT pressurize, cut, heat, or weld containers. DO NOT drop, roll or skid drums. Keep drums upright. DO NOT reuse empty containers without commercial cleaning or reconditioning.

When diluting, always add acid to water **cautiously with agitation.**

STORAGE TEMPERATURE

Do not allow product to freeze. Do not store above 36°C (97°F).

SECTION 8: EXPOSURE CONTROLS PERSONAL PROTECTION

ENGINEERING CONTROLS

VENTILATION

Local exhaust ventilation is recommended if vapors, mists or aerosols are generated. Otherwise, use general exhaust ventilation.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

EYE AND FACE PROTECTION

Wear chemical goggles. A face shield should be worn in addition to goggles where splashing or spraying is possible.

SKIN PROTECTION

Wear chemical resistant clothing. Neoprene gloves, boots and apron or slicker suit. In case of emergency or where there is a strong possibility of considerable exposure, wear a complete acid suit with hood, boots, and gloves.

RESPIRATORY PROTECTION

When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations. Under normal conditions, in the absence of other airborne contaminants, the following devices should provide

protection from this material up to the conditions specified by the appropriate OSHA, WHMIS or ANSI standard(s): Air-purifying (half-mask/full-face) respirator with cartridges/canister approved for use against acid gases.

GENERAL
Safety shower and eye wash station must be provided in the immediate work area. Protective equipment and clothing should be selected, used, and maintained according to applicable standards and regulations. For further information, contact the clothing or equipment manufacturer.

EXPOSURE GUIDELINES

PEL (OSHA):	1.0mg/m^3, 8 Hr. TWA
TLV (ACGIH):	1.0 mg/m^3, 8 Hr. TWA A2 (Sulfuric acid contained in strong inorganic acid mists)
IDLH (NIOSH):	15 mg/m^3.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

CHEMICAL FORMULA	H_2SO_4
MOLECULAR WEIGHT	98.08
APPEARANCE	Oily, colorless to slightly yellow, clear to turbid liquid
ODOR	Odorless
pH @ 25°C	<1
VAPOR PRESSURE	< 0.3 mm Hg @ 25°C (77°F), < 0.6 mm Hg @ 38°C (100°F)
VOLATILES, % BY VOLUME	Not Established
BOILING POINT	276-281°C
MELTING POINT	Not Established
FREEZING POINT	-29°C
SOLUBILITY IN WATER	Complete
SPECIFIC GRAVITY	1.8347 @ 25°C (77°F)
DENSITY	15.3 lbs./gal @ 25°C (77°F)
VISCOSITY	Not Established

SECTION 10: STABILITY AND REACTIVITY

CHEMICAL STABILITY
Stable

CONDITIONS TO AVOID
Reacts violently with water and organic materials with evolution of heat.

INCOMPATIBILITY WITH OTHER MATERIALS
Vigorous reactions with water; alkaline solutions; metals, metal powder; carbides; chlorates; fuminates; nitrates; picrates; strong oxidizing, reducing, or combustible organic materials. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, and carbides.

HAZARDOUS DECOMPOSITION PRODUCTS
Release of sulfur dioxide at extremely high temperatures.

HAZARDOUS POLYMERIZATION
Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

ANIMAL TOXICOLOGY

EYES
Animal testing indicates this material is corrosive to the eye, when tested undiluted. Animal testing indicates this material is a moderate eye irritant, when tested s 10% solution.

SKIN
The concentrated compound is corrosive. Animal testing indicates this material is a slight skin irritant, when tested as 10% solution.

ACUTE ORAL EFFECTS
LD_{50} rat: > 2,140 mg/kg

ACUTE INHALATION EFFECTS
8 hour, LC_{50}, guinea pigs: 30 mg/m^3.

EFFECTS FOLLOWING PROLONGED OR REPEATED EXPOSURE
Single and repeated exposure caused: Irritation of the respiratory tract. Corrosion of the respiratory tract. Lung damage. Labored breathing. Altered respiratory rate. Pulmonary edema. Repeated exposure caused: Altered red blood cell count.

CARCINOGENICITY
IARC classifies "strong inorganic acid mists containing sulfuric acid" as carcinogenic. This classification does not apply to sulfuric acid or sulfuric acid solutions. No adequate animal data are available to define the carcinogenic potential of this material. Limited studies do not suggest effects.

MUTAGENICITY
Sulfuric acid has no mutagenicity.

REPRODUCTIVE/DEVELOPMENTAL TOXICITY
This material has not produced genetic damage in bacterial cultures. It has not been tested for genetic toxicity in mammalian cell cultures or in animals.

SECTION 12: ECOLOGICAL INFORMATION

AQUATIC TOXICITY
Slightly to moderately toxic.
96 hour LC_{50} – Bluegill sunfish: 10.5 ppm
48 hour TLm – Flounder: 100-300 ppm

SECTION 13: DISPOSAL CONSIDERATIONS

SPILL RESIDUES
Processing, use or contamination of this product may change the waste management options. Cleaned-up material may be a RCRA Hazardous Waste due to the corrosively characteristic, Number D002 (Corrosive). All disposals of this material must be done in accordance with Federal, state and local regulations. Waste characterization and compliance with disposal regulations are the responsibilities of the waste generator.

SECTION 14: TRANSPORT INFORMATION

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.01 BY THE U.S DEPARTMENT OF TRANSPORTATION.

DOT IDENTIFICATION NO.: UN 1830

DOT SHIPPING DESCRIPTION (49 CFR 172.101): Sulfuric Acid, II

PLACARD REQUIRED: Corrosive, 1830, Class 8

LABEL REQUIRED: Corrosive, Class 8

Label as required by EPA and by OSHA Hazard Communication Standard, and any applicable state and local regulations.

EMERGENCY RESPONSE GUIDE NUMBER: 137

SECTION 15: REGULATORY INFORMATION

U S FEDERAL REGULATIONS

CERCLA REPORTABLE QUANTITY (RQ)
Sulfuric Acid (7664-93-9) 1,000 lbs.

TSCA (TOXIC SUBSTANCES CONTROL ACT)
All components of this product are listed on the TSCA Inventory or are exempt from TSCA Inventory requirements.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) TITLE III
Components identified with an asterisk (*) in Section 2 are subject to the reporting requirements of Section 313 of Title III of the 1986 Superfund Amendments and Reauthorization Act (SARA) and 40 CFR Part 372.

SARA HAZARD CATEGORIES (40 CFR 370.2)

Fire Hazard	No
Reactivity Hazard	Yes
Release of Pressure	No
Acute Heath Hazard	Yes
Chronic Health Hazard	Yes

INTERNATIONAL REGULATIONS

CANADA

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)
This product, or its components, are listed on or are exempt from the Canadian Domestic Substance List (DSL).

SECTION 16: OTHER INFORMATION

NFPA RATINGS	
HEALTH	3
FLAMMABILITY	0
INSTABILITY	2

HMIS CODES	
HEALTH Y	3
FLAMMABILIT	0
INSTABILITY	2

Personal Protection rating to be supplied by user depending on use conditions.

HIMIS RATING NOTES
This information is for people trained in Key the National Paint & Coatings Association's 4 = Severe (NPCA) Hazardous Materials Identification 3 = Serious System (HMIS). 2 = Moderate, 1 = Slight, 0 = Minimal.

Emergency Information:	**For Any Other Information Contact:**
Call toll free 24 hours a day: 1-866-ALTIVIA (258-4842)	ALTIVIA, Technical Marketing, 1100 Louisiana, Suite 3160, Houston, TX 77002. Phone: 713-658-9000 8 AM – 5 PM CST, Monday through Friday

This MSDS conforms to ANSI Standard Z400.1-1998.

Disclaimer of Warranty:
The information provided in this Material Safety Data Sheet has been obtained from sources believed to be reliable. ALTIVIA provides no warranties, either expressed or implied and assumes no responsibility for the accuracy or completeness of the data contained herein. This information is offered for your information, consideration, and investigation. You should satisfy yourself that you have all current data relevant to your particular use. ALTIVIA knows of no medical condition, other than those noted on this material safety data sheet, which are generally recognized as being aggravated by exposure to this product.

Safety Data Sheet

Material Name: Trisodium Phosphate, 12 Hydrate Crystalline (Technical Grade) **ID: C1-150**

* * * Section 1 - Chemical Product and Company Identification * * *

Chemical Name: Trisodium Phosphate, 12 Hydrate Crystalline (Technical Grade)
Product Use: For Commercial Use

RESTRICTIONS on USE

NOT TO BE USED AS A PESTICIDE. THIS PRODUCT IS NOT TO BE USED IN VIOLATION OF ANY PATENTS. CHEM ONE LTD. DISCLAIMS ANY AND ALL WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR APPLICATION. IN NO EVENT SHALL CHEM ONE LTD. OR ITS SUPPLIERS BE LIABLE FOR ANY DAMAGES WHATSOEVER INCLUDING DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, LOSS OF BUSINESS PROFITS OR SPECIAL DAMAGES, EVEN IF CHEM ONE LTD. OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OF LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES SO THE FOREGOING LIMITATION MAY NOT APPLY.

Supplier Information
Chem One Ltd.
14140 Westfair East Drive
Houston, Texas 77041-1104

Phone: (713) 896-9966
Fax: (713) 896-7540
Emergency # (800) 424-9300 or +1 (703) 527-3887

General Comments: NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

* * * Section 2 - Hazards Identification * * *

GHS HAZARDS

Hazard Classes
Skin corrosion
Serious eye damage

Hazard Categories
Category 1B
Category 1

Signal Word: Danger

Pictograms:

Hazard Statements

PHYSICAL HAZARDS: None

HEALTH HAZARDS: H314: Causes serious skin burns and eye damage

ENVIRONMENTAL HAZARDS: None

PRECAUTIONARY STATEMENTS: P102: Keep out of reach of children
P202: Do not handle until all safety precautions have been read and understood

P261: Avoid breathing dust
P273 Avoid release to the environment
P280: Wear protective gloves, clothing and eye protection

RESPONSE STATEMENTS:

P301 +310+ P331: IF SWALLOWED: USA Immediately call the National POISON CENTER at 800-222-1222. DO NOT induce vomiting
P303+P361+353: IF ON SKIN Take off immediately all contaminated clothing. Rinse skin with water
P304+340: IF INHALED, Remove to fresh air and keep comfortable for breathing
P305+P351: IF IN EYES rinse cautiously with water for at least 15 minutes
P306+P361: IF ON CLOTHING, Take off contaminated clothing
P370: In case of fire use foam, carbon dioxide, dry chemical to extinguish fire
P376: Stop a spill if safe to do so. See section 6 for proper clean up

STORAGE STATEMENTS:

P403: Keep Cool Store in a well-ventilated place

DISPOSAL STATEMENTS:

P501: Dispose of content and/or container in accordance with local, regional, national or international regulations

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
10101-89-0	Trisodium Phosphate Dodecahydrate	98-100

Synonyms: Sodium phosphate tribasic, tribasic sodium phosphate, trisodium orthophosphate, Orthophosphate trisodique, TSP

* * * Section 4 - First Aid Measures * * *

Emergency Overview

This product is a colorless, odorless solid, in crystal form. This product is corrosive, and can cause moderate to severe irritation to contaminated tissues which come in contact with dusts or particulates of this product. If ingested burns can occur to the digestive system. This product is not flammable or reactive. Thermal decomposition of this product produces irritating vapors and toxic gases (e.g. phosphorous oxides). Emergency responders should wear proper personal protective equipment for the releases to which they are responding.

Hazard Statements

DANGER! MAY BE FATAL IF SWALLOWED. MAY CAUSE BURNS TO THE EYES AND SKIN. EYE CONTACT CAN RESULT IN CORNEAL DAMAGE. MAY CAUSE DIFFICULT BREATHING AND RESPIRATORY TRACT IRRITATION. Avoid contact with eyes and skin. Avoid breathing dusts. Keep containers closed. Use with adequate ventilation. Wash thoroughly after handling. Use with adequate ventilation.

Potential Health Effects: Eyes

Exposure to particulates or solution of this product may cause moderate to severe irritation of the eyes, including burns, depending on duration and concentration of contact. Severe contact with the eyes can cause corneal injury, including clouding and burns, which could lead to blindness. Permanent damage (cloudiness of the cornea) has resulted from contact with Trisodium Phosphate, Anhydrous solution in two case reports, one involving hot solution. Concentrations were not reported. In another case report, injury occurred as a result of a splash of aqueous solution, but healed within 48 hours (concentration not reported).

* * * Section 4 – First Aid Measures Continued * * *

Potential Health Effects: Skin

This product can cause moderate to severe irritation of the skin, depending on duration and concentration of exposure. Severe exposure or contact in the presence of moisture, or if product is in solution can cause burns. Alkalies penetrate skin slowly. The extent of damage therefore depends on duration of contact. Repeated skin contact to low levels may lead to dermatitis (red, cracked skin).

Potential Health Effects: Ingestion

Ingestion of this product in large volumes may irritate or burn the tissues of the mouth, esophagus, and other tissues of the digestive system. Symptoms of exposure can include vomiting, diarrhea, and nausea. In severe cases, death may result. The estimated fatal dose of sodium phosphates is 50 g.

Potential Health Effects: Inhalation

Breathing dusts or particulates generated by this product or to mists if in solution, can lead to moderate to severe irritation of the nose, throat or respiratory system, depending on duration and concentration of exposure. Symptoms of minor exposure could include coughing, wheezing, and shortness of breath. According to one report, irritation of the nose and throat was caused by exposure to 0.5 to 2.0 mg/m3 airborne dust for one hour. Irritation has also been reported after short exposures above 7-10 mg/m3. Severe inhalation exposure can result in pulmonary edema (a condition of fluid in the lungs), which can be fatal.

First Aid: Eyes

In case of contact with eyes, rinse immediately with plenty of water for at least 20 minutes. Seek immediate medical attention.

First Aid: Skin

Remove all contaminated clothing. For skin contact, wash thoroughly with soap and water for at least 20 minutes. Seek immediate medical attention if irritation develops or persists. Completely decontaminate clothing, shoes, and leather goods before reuse.

First Aid: Ingestion

Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Immediately give large amounts of water. If vomiting occurs naturally, rinse mouth and repeat administration of water. Obtain medical advice immediately. Never give anything by mouth to a victim who is unconscious or having convulsions.

First Aid: Inhalation

Remove source of contamination or move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Get immediate medical attention.

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

Trisodium Phosphate Dodecahydrate is not combustible, and does not contribute to the intensity of a fire. Closed containers exposed to heat may explode. When involved in a fire, this material may decompose and produce irritating vapors, acrid smoke and toxic gases. Solutions can react with metals such as aluminum, zinc and galvanized iron to produce highly flammable hydrogen gas, which may explode if ignited.

Hazardous Combustion Products

Oxides of phosphorous.

Extinguishing Media

Use methods for the surrounding fire and other materials involved in the fire.

* * * Section 5 - Fire Fighting Measures Continued * * *

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self-contained breathing apparatus. If possible control runoff from fire control or dilution water to prevent environmental contamination.

NFPA Ratings: Health: 2 **Fire:** 0 Instability: 1 **Other:**
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures

Stop the flow of material, if this can be done without risk. Contain the discharged material. If sweeping of a contaminated area is necessary use a dust suppressant agent, which does not react with product (see Section 10 for incompatibility information).

Clean-Up Procedures

Small releases can be cleaned-up wearing gloves, goggles and suitable body protection. In case of a large spill (in which excessive dusts can be generated), clear the affected area, protect people, and respond with trained personnel. Do not allow the spilled product to enter public drainage system or open water courses. Place all spill residues in an appropriate container and seal. Thoroughly wash the area after a spill or leak clean-up. Prevent spill rinsate from contamination of storm drains, sewers, soil or groundwater.

Evacuation Procedures

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. In case of large spills, follow all facility emergency response procedures.

Special Procedures

Remove soiled clothing and launder before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

* * * Section 7 - Handling and Storage * * *

Handling Procedures

All employees who handle this material should be trained to handle it safely. Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling.

Storage Procedures

Keep container tightly closed when not in use. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Storage areas should be made of corrosion- and fire-resistant materials. Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers).

Empty containers may contain residual particulates; therefore, empty containers should be handled with care. Do not cut, grind, weld, or drill near this container. Never store food, feed, or drinking water in containers that held this product. Keep this material away from food, drink and animal feed. Do not store this material in open or unlabeled containers. Limit quantity of material stored.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Exposure Guidelines

A: General Product Information

Follow the applicable exposure limits.

B: Component Exposure Limits

The exposure limits given are for Particulates Not Otherwise Classified.

ACGIH: 10 mg/m^3 TWA (Inhalable fraction)
3 mg/m^3 TWA (Respirable fraction)
OSHA: 15 mg/m^3 TWA (Total dust)
5 mg/m^3 TWA (Respirable fraction)
DFG MAKs 4 mg/m^3 TWA (Inhalable fraction)
1.5 mg/m^3 TWA (Respirable fraction)

Engineering Controls

Ventilation must be sufficient to effectively remove and prevent buildup of dust or fumes that may be generated during handling or thermal processing. Use general ventilation and use local exhaust, where possible, in confined or enclosed spaces.

PERSONAL PROTECTIVE EQUIPMENT

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132). Please reference applicable regulations and standards for relevant details.

Personal Protective Equipment: Eyes/Face

Wear safety glasses (or goggles). If necessary, refer to U.S. OSHA 29 CFR 1910.133.

Personal Protective Equipment: Skin

Use impervious gloves. Gloves should be tested to determine their suitability for prolonged contact with this material. If necessary, refer to U.S. OSHA 29 CFR 1910.138.

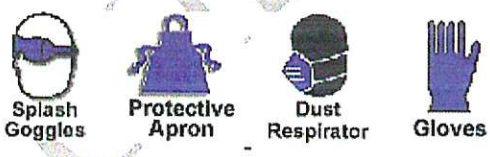
Personal Protective Equipment: Respiratory

None required where adequate ventilation conditions exist. If airborne concentration is high, use an appropriate respirator or dust mask. If airborne concentrations are above the applicable exposure limits, use NIOSH-approved respiratory protection. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

Personal Protective Equipment: General

Wash hands thoroughly after handling material. Do not eat, drink or smoke in work areas. Have a safety shower or eye-wash fountain available.

Protective Clothing Pictograms



* * * Section 9 - Physical & Chemical Properties * * *

Physical Properties: Additional Information

The data provided in this section is to be used for product safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

Appearance:	White crystals	**Odor:**	Odorless
Physical State:	Solid	**pH:**	12.0 (1% solution)
Vapor Pressure:	Zero	**Vapor Density:**	Not applicable
Boiling Point:	Not applicable	**Melting Point:**	166 deg F (73 deg C)
Solubility (H2O):	28 g/100 ml water @ 15 deg C	**Specific Gravity:**	1.62(H2O = 1)
Freezing Point:	Not applicable	**Particle Size:**	Not determined
Softening Point:	Not applicable	**Bulk Density:**	Not available
Flash Point:	Not flammable	**Chemical Formula:**	$Na_3PO_4 \cdot 12H_2O$
Upper Flammable Limit (UEL):	Not applicable	**Method Used:**	Not applicable
Auto Ignition:	Not applicable	**Lower Flammable Limit (LEL):**	Not applicable
Flammability Classification:	Not applicable	**Rate of Burning:**	Not applicable

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

Stable under conditions of standard temperature and pressure. Trisodium Phosphate can react with air to form disodium phosphate and sodium carbonate. Trisodium phosphate forms strong caustic solution, similar to soda lye. Solutions can react with metals such as aluminum, zinc and galvanized iron to produce highly flammable hydrogen gas that may explode if ignited.

Chemical Stability: Conditions to Avoid

Avoid high temperatures, exposure to air and incompatible materials.

Incompatibility

Trisodium Phosphate is incompatible with strong acids and may react violently; in solution reaction may cause splattering. In solution, Trisodium Phosphate will react with metals such as aluminum, zinc and galvanized iron to form flammable hydrogen gas. Trisodium Phosphate may react violently with magnesium. Trisodium Phosphate can be corrosive with some metals, including aluminum, zinc and tin. Trisodium Phosphate is corrosive to gray cast iron at high temperatures and may be corrosive to steel or brass, if wet.

Hazardous Decomposition

Phosphorus oxides.

Hazardous Polymerization

Will not occur.

* * * Section 11 - Toxicological Information * * *

Acute and Chronic Toxicity

A: General Product Information

May cause moderate to severe eye, skin, nose, throat and respiratory tract irritation or burns. After 0.1 ml of Trisodium Phosphate was placed in the eye of a rabbit, a corrosive effect was seen within 24 hours. After 14 days, eye regained normal appearance. Moderate irritation was observed when 0.5 mg/L of Trisodium Phosphate was held in continuous contact with intact skin of a rabbit and abraded skin for 24 hours.

Chronic: Long term skin overexposure to this product may lead to dermatitis (red, itchy skin).

B: Component Analysis - LD50/LC50

Trisodium Phosphate:

LD_{50} (Oral-Rat) 7400 mg/kg; LD_{50} (Intraperitoneal-Mouse) 430 mg/kg; LD_{50} (Skin-Rabbit) > 7940 mg/kg

* * * Section 11 - Toxicological Information Continued * * *

C: Component Analysis - TDLo/LDLo
LDLo (Intravenous-Rabbit) 1580 mg/kg

Carcinogenicity

A: General Product Information
Trisodium Phosphate is not considered carcinogenic by ACGIH, IARC, NIOSH, NTP, or OSHA.

B: Component Carcinogenicity
No information available.

Epidemiology
No information available.

Neurotoxicity
No information available.

Mutagenicity
Sex Chromosome Loss and Non-Disjunction (Oral-Drosophila melanogaster) 11 pph

Teratogenicity
No information available.

Other Toxicological Information
LD (Skin-Rabbit) > 300 mg/kg

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information
Product can be dangerous to aquatic life in high concentrations as it will increase the pH of the aquatic environment.

B: Ecotoxicity
No information available.

Environmental Fate
Product is not expected to accumulate in the food chain.

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Number & Descriptions

A: General Product Information
EPA waste code for corrosivity (D002) may be required. Wastes should be tested to determine applicability.

B: Component Waste Numbers
No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions
All wastes must be handled in accordance with local, state and federal regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

* * * Section 14 - Transportation Information * * *

NOTE: The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size. Consult shipper requirements under I.M.O., I.C.A.O. (I.A.T.A.) and 49 CFR to assure regulatory compliance.

US DOT Information

Shipping Name: Not applicable.
Hazard Class: Not applicable
UN/NA #: Not applicable
Packing Group: Not applicable
Required Label(s): Not applicable
RQ Quantity: Not applicable
NOTE: In single package greater than 5,000 lbs.

US DOT 49 CFR 100-185 Revised July 28, 2015 Information

UN/NA #: UN 3077
Shipping Name: Environmentally Hazardous Substance, solid, n.o.s. (Sodium Phosphate Tribasic)
Hazard Class: 9
Packing Group: III
Required Label(s): Class 9
Special Provision: 8, 146, 335, A112, B54, IB8, IP2, N20, T1, TP33
Packaging: 172.155, 172.213
RQ Quantity: For a single package less than the RQ of 5000lb the RQ designation should be not be used.

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

A: General Product Information

Trisodium Phosphate Dodecahydrate (CSA # 10101-89-0) is not on the TSCA inventory. As a hydrate, Trisodium Phosphate Dodecahydrate is accepted from TSCA Inventory requirements (per 40 CFR 720.3 (u) (2)).

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

SARA 302 (EHS TPQ) There are no specific Threshold Planning Quantities for Trisodium Phosphate Dodecahydrate. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs. (4,540 kg) therefore applies, per 40 CFR 370.20.

Trisodium Phosphate Dodecahydrate (10101-89-0)

CERCLA: final RQ = 5000 pounds (2270 kg) (Listed under 'Sodium phosphate, tribasic')

The following identified ingredients are not on the TSCA Inventory:
10101-89-0 Trisodium Phosphate Dodecahydrate

C: Sara 311/312 Tier II Hazard Ratings:

Component	CAS #	Fire Hazard	Reactivity Hazard	Pressure Hazard	Immediate Health Hazard	Chronic Health Hazard
Trisodium Phosphate Dodecahydrate	10101-89-0	No	No	No	Yes	No

State Regulations

A: General Product Information

California Proposition 65

Trisodium Phosphate Dodecahydrate is not on the California Proposition 65 chemical lists.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substance lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Trisodium Phosphate Dodecahydrate	10101-89-0	Y	N	Y	N	Y	Y

* * * Section 15 - Regulatory Information Continued * * *

Other Regulations

A: General Product Information

Trisodium Phosphate Anhydrous is designated as a hazardous substance under section 311(b) (2) (A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Trisodium Phosphate Dodecahydrate	10101-89-0	No	No	Unlisted

C: Component Information (Canada)

Trisodium Phosphate Dodecahydrate is not listed in the WHMIS IDL

ANSI LABELING (Z129.1):

DANGER! MAY BE FATAL IF SWALLOWED. CAUSES SKIN AND EYE BURNS. HARMFUL IF INHALED. Do not taste or swallow. Do not get on skin or in eyes. Avoid breathing dusts or particulates. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves, goggles, face shields, suitable body protection, and NIOSH/MSHA-approved respiratory protection, as appropriate. **FIRST-AID:** In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. **IN CASE OF FIRE:** Use water fog, dry chemical, CO_2, or "alcohol" foam. **IN CASE OF SPILL:** Absorb spill with inert material or neutralizing agent for bases. Place residue in suitable container. Consult Material Safety Data Sheet for additional information.

* * * Section 16 - Other Information * * *

Other Information

Chem One Ltd. ("Chem One") shall not be responsible for the use of any information, product, method, or apparatus herein presented ("Information"), and you must make your own determination as to its suitability and completeness for your own use, for the protection of the environment, and for health and safety purposes. You assume the entire risk of relying on this Information. In no event shall Chem One be responsible for damages of any nature whatsoever resulting from the use of this product or products, or reliance upon this Information. By providing this Information, Chem One neither can nor intends to control the method or manner by which you use, handle, store, or transport Chem One products. If any materials are mentioned that are not Chem One products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed. Chem One makes no representations or warranties, either express or implied of merchantability, fitness for a particular purpose or of any other nature regarding this information, and nothing herein waives any of Chem One's conditions of sale. This information could include technical inaccuracies or typographical errors. Chem One may make improvements and/or changes in the product (s) and/or the program (s) described in this information at any time. If you have any questions, please contact us at Tel. 713-896-9966 or E-mail us at Safety@chemone.com.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration

Contact: Sue Palmer-Koleman, PhD **Contact Phone:** (713) 896-9966

Revision Log

07/11/00 10:50AM SEP Company name revised, Sect 1 and 16, from Corporation to Ltd.; text in Sect 12 "will lower pH", Changed to "will increase pH".
06/02/01 9:31 AM HDF Checked exposure limits; made changes to Sect 9; overall review, add SARA 311/312 Haz Ratings.
08/20/01 6:00 PM CLJ Add Shipments by Air information to Section 14, Changed contact to Sue, non-800 Chemtrec Num.
09/30/03: 11:10 AM HDF General Review and up-date of entire MSDS. Up-date of HMIS categories. Up-date of Section 8. Addition of Stability information, Section 10. Up-date of toxicity data, Section 11. Up-date of Section 14. Addition of Clean Water Act information, Section 15.
06/22/05: 11:10 SEP Updated IATA, Section 14
10/23/07 2:31pm SEP Updated IATA Section 14
10/15/08 10:53 AM DLY Changed Chem One Physical Address, Section 1
12/27/2010 4:00 PM SEP Updated IATA
07/30/2015 GHS Revisions all sections
This is the end of SDS # C1-150

Revised By:
SJC Compliance Education, Inc.
16516 El Camino Real Suite 417
Houston TX 77062

FID	owner	addr1	addr2	addı	addrUnit	addrCity	addrSt	addrZip
0	SARMIENTI	234 W Park Dr				Brownsville	TX	78520-4332
1	RUNYON M	264 W Park Dr				Brownsville	TX	78520-4332
2	GARZA RO(	7570 US Highway 281				Brownsville	TX	78520-9533
3	ALANIZ DA'	1225 N Expressway Ste 1C				Brownsville	TX	78520-8358
4	VARELA FEI	100 Riverside Blvd				Brownsville	TX	78520-4348
5	COSTILLA C	PO Box 790				Brownsville	TX	78522-0790
6	MORRISON	1600 S Main St Apt 214				Duncanville	TX	75137-3290
7	LOPEZ MAI	1423 W SAINT FRANCIS				BROWNSVI	TX	78520
8	CASPISTRA	244 Rio Vista Ave				Brownsville	TX	78520-4342
9	CORTEZ M/	1221 Pasadero Dr				Brownsville	TX	78526-4033
10	LOZANO R(	2100 W San Marcelo Blvd ,				Brownsville	TX	78526-1708
11	RODRIGUE:	334 MASON AVE				BROWNSVI	TX	78520
12	RAMIREZ M	920 Houston Ave Apt 106				Pasadena	TX	77502-2220
13	BROWN W.	308 Rio Vista Ave				Brownsville	TX	78520-4370
14	GARZA MI	34100 California Rd				Los Fresno:	TX	78566-4477
15	COLTRIN RI	PO Box 15				Riverton	UT	84065-0019
16	MARTINEZ	358 Rio Vista Ave				Brownsville	TX	78520-4370
17	BRAVO JUA	6955 A Longoria				Brownsville	TX	78520-9629
18	MCARDLE I	5 WEST 10TH ST				BROWNSVI	TX	78520
19	SALINAS M	44 BORDER ST				BROWNSVI	TX	78520
20	GARZA MI	34920 California Rd.				Los Fresno:	TX	78566
21	PEREZ SEVI	3305 Daisy Dr				Brownsville	TX	78521-8116
22	HALL NICH(	1810 Antietam St				Pittsburgh	PA	15206-1124
23	REYNA JESI	335 Mason Ave				Brownsville	TX	78520-4322
24	GARZA RO(	7570 US Highway 281				Brownsville	TX	78520-9533
25	SALINAS CI	2233 Ana Laura Ct				Brownsville	TX	78521-8058
26	GARCIA AR	338 Rio Vista Ave				Brownsville	TX	78520-4370
27	HERRERA D	25710 Alp Springs Ln				Spring	TX	77373-7948
28	DE LA GAR/	224 RIO VISTA AVE				BROWNSVI	TX	78520
29	JIMENEZ LI	314 N Park Dr				Brownsville	TX	78520-4328
30	TORRES EV	304 Rio Vista Ave				Brownsville	TX	78520-4370
31	AME & MA	2203 Reedway Ct				Arlington	TX	76018-3136
32	HERNANDE	362 RIO VISTA AVE				BROWNSVI	TX	78520-4370
33	MORENO J	215 N Park Dr				Brownsville	TX	78520-4368
34	ACOSTA DI	14 W 12th St				Brownsville	TX	78520-5657
35	GARCIA JU/	624 Parral St				Brownsville	TX	78520-4338
36	RANGEL CI	PASEO DEL NOGAL #46 FR/				MATAMOR	TAMPS	87380
37	MENDIOLA	1906 W Elizabeth St				Brownsville	TX	78520-4434
38	GARZA ARI	1545 W SAINT CHARLES ST				BROWNSVI	TX	78520-6553
39	PELAYO ES	1707 W Elizabeth St				Brownsville	TX	78520-6644
40	MORALES I	157 WOOD AVE				BROWNSVI	TX	78520
41	DELETED A	DELETED ACCOUNT						
42	LUNA ZOIL	5 W 11TH STREET				BROWNSVI	TX	78520
43	GONZALEZ	672 Parral St				Brownsville	TX	78520-4338
44	ESCOBEDO	24 W 12th St				Brownsville	TX	78520-5657
45	JARAMILLC	304 NORTH PARK DR				BROWNSVI	TX	78520-4328

46	DURAN GE	17 Calle Chiquita		Brownsville	TX 78521-4881
47	RODRIGUE	334 MASON AVE		BROWNSVI	TX 78520
48	CAVAZOS J	634 Parral Ct		Brownsville	TX 78520-4316
49	LOYA JUAN	644 Parral Ct		Brownsville	TX 78520-4316
50	RIO BRAVO	136 Ruben Torres SR Blvd		Brownsville	TX 78520-9137
51	RODRIGUE	129 Dawley St		Brownsville	TX 78520-4365
52	135 DAWLI	135 DAWLEY ST		BROWNSVI	TX 78520-4365
53	HERNANDE	764 PARRAL ST		BROWNSVI	TX 78520
54	SALGADO E	1552 E HARRISON ST		BROWNSVI	TX 78520-6933
55	GARZA ARI	1545 W SAINT CHARLES ST		BROWNSVI	TX 78520-6553
56	WESTERMI	4693 Lakeway Dr		Brownsville	TX 78520-9233
58	FLORES TO	204 WOOD AVE		BROWNSVI	TX 78520
59	ESQUIVEL I	1222 Palo Blanco Dr		Laguna Vist	TX 78578-2791
60	ROSALES R	690 PARRAL ST		BROWNSVI	TX 78520-4338
61	ALEJANDRO	15 Mantua St		Brownsville	TX 78526-1949
62	HERNANDE	2965 E 13TH ST		BROWNSVI	TX 78521
63	RAMIREZ M	235 Wood Ave		Brownsville	TX 78520-4361
64	ANAYA SAI	604 PARRAL ST		BROWNSVI	TX 78520
65	SALINAS AI	414 Parral St		Brownsville	TX 78520-4334
66	MONTEMA	PO Box 6361		Brownsville	TX 78523-6361
67	VAZQUEZ L	55 W 13th St		Brownsville	TX 78520-5660
69	SANCHEZ E	347 Rio Vista Ave		Brownsville	TX 78520-4369
70	BROWNSVI	PO BOX 3270		BROWNSVI	TX 78523-3270
72	PARDO DAI	85 VARADERO ST		BROWNSVI	TX 78526
73	HERNANDE	35 BORDER ST		BROWNSVI	TX 78520
74	ESCAMILLA	127 DAWLEY ST		BROWNSVI	TX 78520
75	ORTIZ PABI	694 PARRAL ST		BROWNSVI	TX 78520-4338
77	DELETED A	DELETED ACCOUNT			
78	ESQUIVEL J	1337 W FRONTON ST		BROWNSVI	TX 78520-6501
79	DELETED A	DELETED ACCOUNT			
80	ROJAS VER	324 Rio Vista Ave		Brownsville	TX 78520-4370
81	GRANJA AI	254 RIO VISTA AVE		BROWNSVI	TX 78520-4342
82	AME & MA	2203 Reedway Ct		Arlington	TX 76018-3136
83	GREER KAR	118 E Saint Francis St # A		Brownsville	TX 78520-5416
84	GARZA ELI	193 Gilson Rd		Brownsville	TX 78520-9159
85	MARTINEZ	132 DAWLEY AVE		BROWNSVI	TX 78520
86	AVILES MA	3285 Mano Dr	Apt B	Brownsville	TX 78520-1512
87	ESQUIVEL I	552 Thoreau Trl		Schertz	TX 78154-1158
88	HERNANDE	2965 E 13TH ST		BROWNSVI	TX 78521
89	DE LUNA M	354 MASON AVE		BROWNSVI	TX 78520-4323
90	GONZALEZ	672 Parral St		Brownsville	TX 78520-4338
91	KASSAVICH	125 Dawley St		Brownsville	TX 78520-4365
92	RAMIREZ L	111 W 14th St		Brownsville	TX 78520-6511
93	ANAYA SAI	604 PARRAL ST		BROWNSVI	TX 78520
94	HULL LUCY	1166 York Ave		Corpus Chr	TX 78404-3743
95	PONCE ERC	264 RIO VISTA		BROWNSVI	TX 78520-4342
96	ELIZONDO	1437 Calle Espacio		Brownsville	TX 78520-4004

97	BENAVIDES	574 Los Altos St	Brownsville	TX 78520-4317
98	GONZALEZ	20231 Enchanted Rose Ln	Cypress	TX 77433-2041
99	BROWNSVI	PO Box 3270	Brownsville	TX 78523-3270
100	PARDO EM	670 Parral St	Brownsville	TX 78520-4338
101	GARCIA YO	614 PARRAL ST	BROWNSVI	TX 78520-4338
102	EDWARD M	600 Riverside Blvd	Brownsville	TX 78520-4358
103	GONZALEZ	672 Parral St	Brownsville	TX 78520-4338
104	CITY OF BR	404 E WASHINGTON ST	BROWNSVI	TX 78520
105	HERNANDE	630 Parral St	Brownsville	TX 78520-4338
106	DIMAS TER	365 MASON AVE	BROWNSVI	TX 78520-4322
107	REYNA OLG	345 Mason Ave	Brownsville	TX 78520-4322
108	ALVAREZM	1245 W FRONTON ST	BROWNSVI	TX 78520-5621
109	MENDEZ R	1637 W Levee St	Brownsville	TX 78520-6675
110	HERNANDE	111 W 14th St	Brownsville	TX 78520-6511
111	VALDEZ BE	604 PARRAL ST	BROWNSVI	TX 78520
112	LEDESMA E	130 Dawley Ave	Brownsville	TX 78520-4311
113	REYNA JESI	335 Mason Ave	Brownsville	TX 78520-4322
114	GARZA GU/	4077 Westland Dr	Brownsville	TX 78521-3661
117	CAVAZOS J	744 Parral St	Brownsville	TX 78520-4340
118	TRUJILLO R	325 MASON AVE	BROWNSVI	TX 78520-4322
119	GARZA JUA	284 W PARK	BROWNSVI	TX 78520
120	OLGUIN EL	234 Wood Ave	Brownsville	TX 78520-4362
121	RAMIREZ L	111 W 14th St	Brownsville	TX 78520-6511
122	VALADEZ G	580 Red Rose St	Brownsville	TX 78520-9315
123	VALADEZ G	580 Red Rose St	Brownsville	TX 78520-9315
124	ORTEGA GI	PO Box 3515	Brownsville	TX 78523-3515
125	CAVAZOS J	364 MASON AVE	BROWNSVI	TX 78520-4323
126	BUSTOS DA	45 W 12th St	Brownsville	TX 78520-5656
128	LOZANO LC	284 Rio Vista Ave	Brownsville	TX 78520-4342
129	CASTRO CE	2717 Madrid Ave	Brownsville	TX 78520-8572
130	SALAS JUAI	2280 Concord Pl	Brownsville	TX 78520-3982
131	GARCIA JO	5412 Autumn Mist	Brownsville	TX 78526-4208
132	GARZA ADO	424 PARRAL ST	BROWNSVI	TX 78520-4334
133	GOOD SHE	45 Fireside Dr	Brownsville	TX 78521-1644
134	CASTELLAN	318 Rio Vista Ave	Brownsville	TX 78520-4370
135	MENDEZ R	1637 W Levee St	Brownsville	TX 78520-6675

SPIF WITH ATTACHMENT

BROWNSVILLE
PUBLIC UTILITIES BOARD

July 1, 2024

Texas Commission on Environmental Quality
Water Quality Division
Applications Review and Processing Team, MC-148
12100 Park 35 Circle
Austin, TX 78753

Re: Silas Ray Power Plant TPDES Permit No. WQ0003096000
EPA ID No. TX0105651
RN100219450
CN603752932
Industrial Wastewater Permit Renewal Application – Supplemental Permit Information Form (SPIF)

To Whom It May Concern:

Attached is the Supplemental Permit Information Form (SPIF) for the Silas Ray Power Plant Located at 94 West 13th Street, Brownsville (Cameron County), Texas.

If you or a member of your staff have any questions, please call me at (956) 983-6252 or e-mail at svorrey@brownsville-pub.com

Sincerely,

V. Seshumani

Seshumani Vorrey,
Lead Environmental Compliance Specialist

Enclosure

cc: File

1425 Robinhood Drive P.O. Box 3270 Brownsville, TX 78523-3270
(956) 983-6100 Fax: (956) 983-6289

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

FOR AGENCIES REVIEWING DOMESTIC OR INDUSTRIAL TPDES WASTEWATER PERMIT APPLICATIONS

TCEQ USE ONLY:

Application type: _____Renewal _____Major Amendment ____Minor Amendment _____New

County: _____ Segment Number: _____

Admin Complete Date: _____

Agency Receiving SPIF:

_____ Texas Historical Commission _____ U.S. Fish and Wildlife

_____ Texas Parks and Wildlife Department _____ U.S. Army Corps of Engineers

This form applies to TPDES permit applications only. (Instructions, Page 53)

Complete this form as a separate document. TCEQ will mail a copy to each agency as required by our agreement with EPA. If any of the items are not completely addressed or further information is needed, we will contact you to provide the information before issuing the permit. Address each item completely.

Do not refer to your response to any item in the permit application form. Provide each attachment for this form separately from the Administrative Report of the application. The application will not be declared administratively complete without this SPIF form being completed in its entirety including all attachments. Questions or comments concerning this form may be directed to the Water Quality Division's Application Review and Processing Team by email at WQ-ARPTeam@tceq.texas.gov or by phone at (512) 239-4671.

The following applies to all applications:

1. Permittee: Brownsville Public Utilities Board

   Permit No. WQ00 030960000 EPA ID No. TX 105651

   Address of the project (or a location description that includes street/highway, city/vicinity, and county):

   94 West 13th Street , Brownsville, Cameron County

Provide the name, address, phone and fax number of an individual that can be contacted to answer specific questions about the property.

Prefix (Mr., Ms., Miss): Ms

First and Last Name: Seshumani Vorrey

Credential (P.E, P.G., Ph.D., etc.): R.E.M

Title: Lead Environmental Compliance Specialist

Mailing Address: 1425 RobinHood Drive

City, State, Zip Code: Brownsville,TEXAS,78520

Phone No.: (956) 986 6252 Ext.: Fax No.: (956) 983 6260

E-mail Address: svorrey@brownsville-pub.com

2. List the county in which the facility is located: Cameron
3. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property.

N/A

4. Provide a description of the effluent discharge route. The discharge route must follow the flow of effluent from the point of discharge to the nearest major watercourse (from the point of discharge to a classified segment as defined in 30 TAC Chapter 307). If known, please identify the classified segment number.

To Morales Banco No.133(an oxbow lake);thence to Rio Grande FalconReservoir in SEgmnet No. 2302of the Rio Grande Basin.

5. Please provide a separate 7.5-minute USGS quadrangle map with the project boundaries plotted and a general location map showing the project area. Please highlight the discharge route from the point of discharge for a distance of one mile downstream. (This map is required in addition to the map in the administrative report).

Provide original photographs of any structures 50 years or older on the property.

Does your project involve any of the following? Check all that apply.

- ☐ Proposed access roads, utility lines, construction easements
- ☐ Visual effects that could damage or detract from a historic property's integrity
- ☐ Vibration effects during construction or as a result of project design
- ☐ Additional phases of development that are planned for the future
- ☐ Sealing caves, fractures, sinkholes, other karst features

☐ Disturbance of vegetation or wetlands

1. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves, or other karst features):

N/A

2. Describe existing disturbances, vegetation, and land use:

The site is home to the Silas Ray Power Plant and Water Treatment Plant #1

THE FOLLOWING ITEMS APPLY ONLY TO APPLICATIONS FOR NEW TPDES PERMITS AND MAJOR AMENDMENTS TO TPDES PERMITS

3. List construction dates of all buildings and structures on the property:

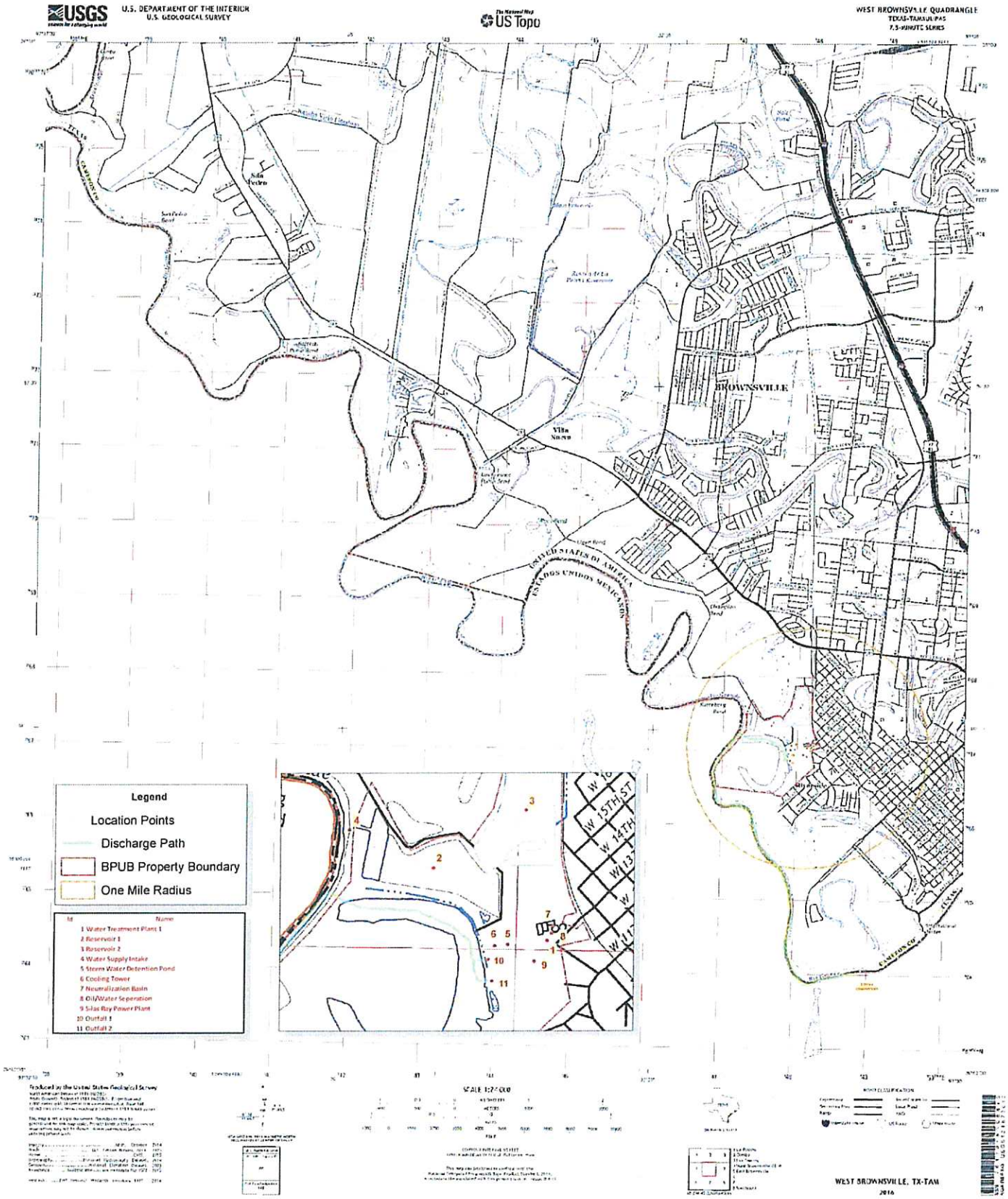
N/A

4. Provide a brief history of the property, and name of the architect/builder, if known.

N/A

Pump House Building built in 1948.

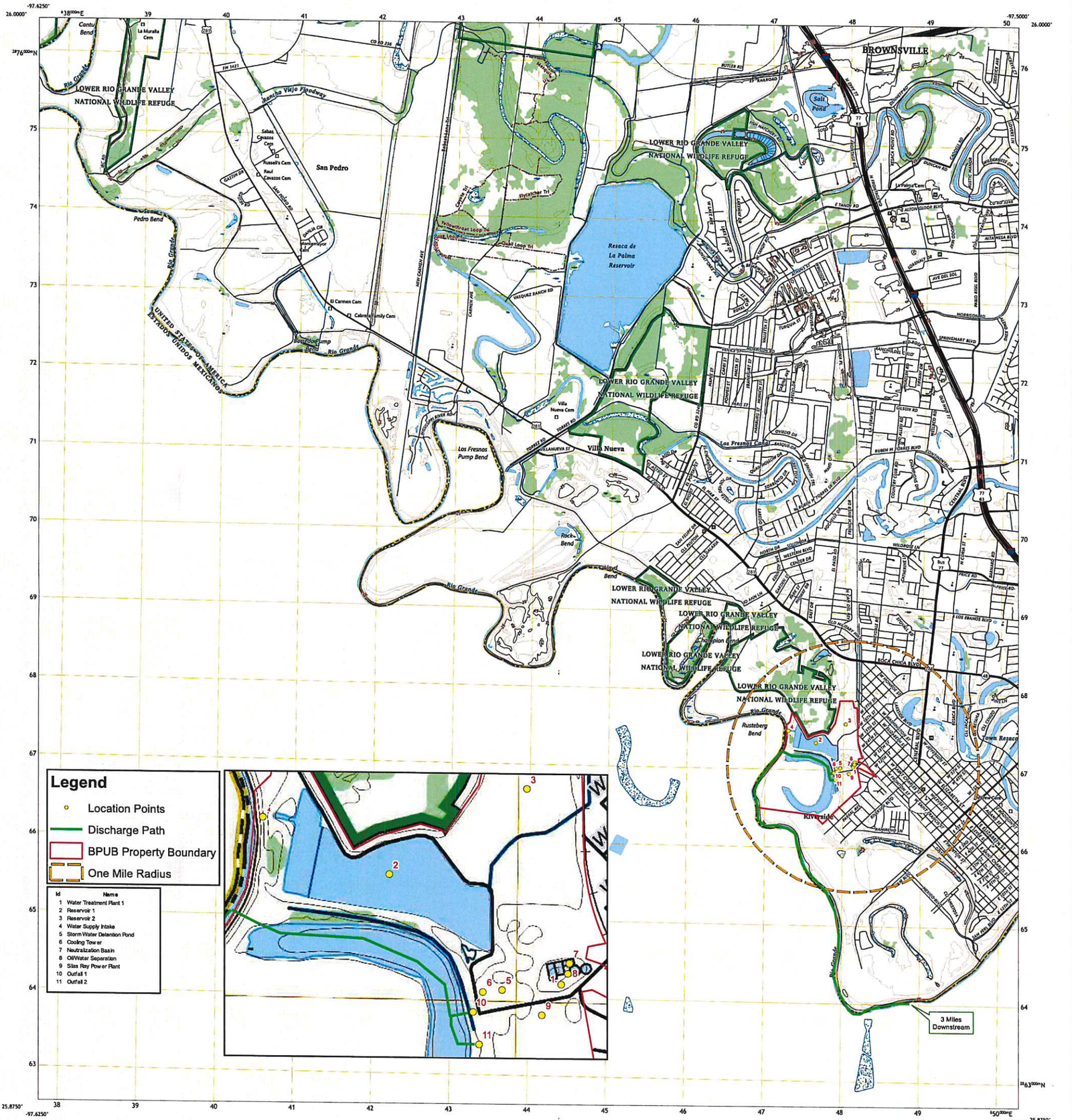
Silas Ray Power Plant built in 1948.


USGS
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
US Topo
WEST BROWNSVILLE QUADRANGLE
TEXAS-TAMAULIPAS
7.5-MINUTE SERIES
BROWNSVILLE
Villa Nueva
Silas Ray
UNITED STATES OF AMERICA
ESTADOS UNIDOS MEXICANOS
CAMERON CO
W 15TH ST
W 14TH ST
Legend
Location Points
Discharge Path
BPUB Property Boundary
One Mile Radius
Id Name
1 Water Treatment Plant 1
2 Reservoir 1
3 Reservoir 2
4 Water Supply Intake
5 Storm Water Detention Pond
6 Cooling Tower
7 Neutralization Basin
8 Oil/Water Seperation
9 Silas Ray Power Plant
10 Outfall 1
11 Outfall 2
SCALE 1:24 000
WEST BROWNSVILLE, TX-TAM
2016

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

WEST BROWNSVILLE QUADRANGLE
TEXAS - CAMERON COUNTY
7.5-MINUTE SERIES



Legend

- Location Points
- Discharge Path
- BPUB Property Boundary
- One Mile Radius

Id	Name
1	Water Treatment Plant 1
2	Reservoir 1
3	Reservoir 2
4	Water Supply Intake
5	Storm Water Detention Pond
6	Cooling Tower
7	Neutralization Basin
8	Oil/Water Separation
9	Silas Ray Power Plant
10	Outfall 1
11	Outfall 2

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 14R

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, December 2016 - January 2017
Roads.....U.S. Census Bureau, 2015
Names.....GNIS, 1979 - 2013
Hydrography.....National Hydrography Dataset, 2001 - 2018
Contours.....National Elevation Dataset, 2019
Boundaries.....Multiple sources; see metadata file 2020 - 2022
Wetlands.....FWS National Wetlands Inventory Not Available

UTM GRID AND 2023 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard.

TEXAS
QUADRANGLE LOCATION

1	2	3
4		5
		6

ADJOINING QUADRANGLES
1 La Paloma
2 Combes
3 Los Fresnos
4 West Brownsville OE W
5 East Brownsville
6 Southmost

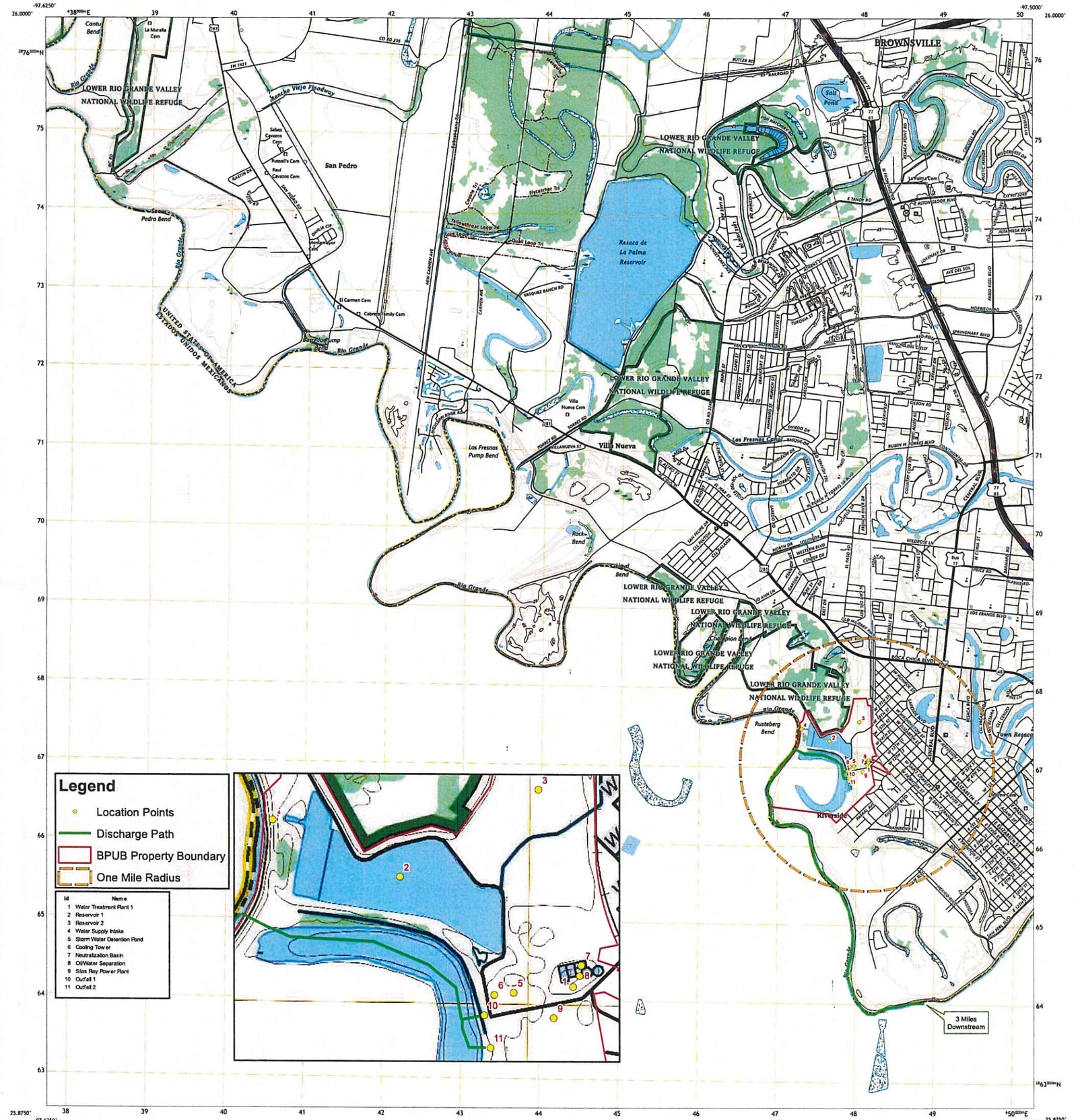
ROAD CLASSIFICATION
Expressway — Local Connector
Secondary hwy — Local Road
Ramp — 4WD
Interstate Route — US Route — State Route

WEST BROWNSVILLE, TX, TAM
2023

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

WEST BROWNSVILLE QUADRANGLE
TEXAS - CAMERON COUNTY
7.5-MINUTE SERIES



Legend

- Location Points
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Id	Name
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UTM GRID AND 2023 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard.

ADJOINING QUADRANGLES
1 La Paloma
2 Olmito
3 Los Fresnos
4 West Brownsville OE W
5 East Brownsville
6 Southmost

ROAD CLASSIFICATION
Expressway, Secondary Hwy, Ramp, Local Connector, Local Road, 4WD
Interstate Route, US Route, State Route

WEST BROWNSVILLE, TX, TAM
2023

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

FOR AGENCIES REVIEWING DOMESTIC OR INDUSTRIAL TPDES WASTEWATER PERMIT APPLICATIONS

TCEQ USE ONLY:

Application type: ____Renewal ____Major Amendment ____Minor Amendment ____New

County: _____ Segment Number: _____

Admin Complete Date: _____

Agency Receiving SPIF:

_____ Texas Historical Commission _____ U.S. Fish and Wildlife

_____ Texas Parks and Wildlife Department _____ U.S. Army Corps of Engineers

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The following applies to all applications:

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   Permit No. WQ00 03096000 EPA ID No. TX 105651

   Address of the project (or a location description that includes street/highway, city/vicinity, and county):

   94 West 13th Street , Brownsville, Cameron County

Provide the name, address, phone and fax number of an individual that can be contacted to answer specific questions about the property.

Prefix (Mr., Ms., Miss): Ms

First and Last Name: Seshumani Vorrey

Credential (P.E, P.G., Ph.D., etc.): R.E.M

Title: Lead Environmental Compliance Specialist

Mailing Address: 1425 RobinHood Drive

City, State, Zip Code: Brownsville,TEXAS,78520

Phone No.: (956) 986 6252 Ext.: Fax No.: (956) 983 6260

E-mail Address: svorrey@brownsville-pub.com

2. List the county in which the facility is located: Cameron
3. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property.

N/A

4. Provide a description of the effluent discharge route. The discharge route must follow the flow of effluent from the point of discharge to the nearest major watercourse (from the point of discharge to a classified segment as defined in 30 TAC Chapter 307). If known, please identify the classified segment number.

To Morales Banco No.133(an oxbow lake);thence to Rio Grande FalconReservoir in SEgmnet No. 2302of the Rio Grande Basin.

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Does your project involve any of the following? Check all that apply.

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- ☐ Visual effects that could damage or detract from a historic property's integrity
- ☐ Vibration effects during construction or as a result of project design
- ☐ Additional phases of development that are planned for the future
- ☐ Sealing caves, fractures, sinkholes, other karst features

☐ Disturbance of vegetation or wetlands

1. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves, or other karst features):

N/A

2. Describe existing disturbances, vegetation, and land use:

The site is home to the Silas Ray Power Plant and Water Treatment Plant #1

THE FOLLOWING ITEMS APPLY ONLY TO APPLICATIONS FOR NEW TPDES PERMITS AND MAJOR AMENDMENTS TO TPDES PERMITS

3. List construction dates of all buildings and structures on the property:

N/A

4. Provide a brief history of the property, and name of the architect/builder, if known.

N/A

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided.)*

☐ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application.)*

☒ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 603752932		RN 100219450

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☐ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* *If new Customer, enter previous Customer below:*

Public Utilities Board of the City of Brownsville

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
0022602101	32054740520	74-2137823	60-634-7037

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☒ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher

13. Independently Owned and Operated?
☒ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following:*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:								
	P.O. Box 3270							
	City	Brownsville	State	TX	ZIP	78523	ZIP + 4	3270

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
	svorrey@brownsville-pub.com

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(956) 983-6252		(956) 983-6260

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC.)

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

Silas Ray Power Plant

23. Street Address of the Regulated Entity: *(No PO Boxes)*	94 West 13th Street							
	City	Brownsville	**State**	TX	**ZIP**	78520	**ZIP + 4**	
24. County	Cameron							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	25.9131, -97.5214				
26. Nearest City			**State**		**Nearest ZIP Code**

27. Latitude (N) In Decimal:	25.913652		**28. Longitude (W) In Decimal:**	-97.521589	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
25	54	49.1466	-97	31	17.7204

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
4911		221112	

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Generates electric power for Brownsville, Texas

34. Mailing Address:	P.O. Box 3270							
	City	Brownsville	**State**	TX	**ZIP**	78523	**ZIP + 4**	3270

35. E-Mail Address:	svorrey@brownsville-pub.com	
36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(956) 983-6253		(956) 983-6260

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☒ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:
	WQ0003096000			

SECTION IV: Preparer Information

40. Name:	Seshumani Vorrey	**41. Title:**	Lead Env Compliance Specialist
42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(956) 983-6252		(956) 983-6260	svorrey@brownsville-pub.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Brownsville Public Utilities Board	**Job Title:**	Director of Environmental Services
Name *(In Print)* **:**	Alberto Gomez, Jr.	**Phone:**	(956) 983-6251
Signature:	Alberto Gomez Jr	**Date:**	7/18/2024

Comisión de Calidad Ambiental del Estado de Texas

AVISO DE RECIBO DE LA SOLICITUD Y
EL INTENTO DE OBTENER PERMISO PARA LA CALIDAD DEL AGUA
RENOVACION

PERMISO NO. WQ000

SOLICITUD. La Junta de Servicios Públicos de Brownsville 1425 Robinhood Drive, Condado de Cameron Texas 78521 ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para renovar el Permiso No. WQ0003096000 (EPA I.D. No. TX 105651) del Sistema de Eliminación de Descargas de Contaminantes de Texas (TPDES) para autorizar la descarga de aguas residuales tratadas en un volumen que no sobrepasa un flujo promedio diario de 390,000 galones por día. La planta está ubicada 94 W 13th Street, Brownsville, Texas 78520 en el Condado de Cameron. La ruta de descarga es del sitio de la planta a La ruta de descarga es desde el sitio de la planta por las salidas 001 y 002 hasta el Dique Morales Banco No. 133; de allí al Río Grande Debajo de la reserva Falcón. La TCEQ recibió esta solicitud el 3 de Julio del 2024. La solicitud para el permiso estará disponible para leerla y copiarla en La Junta de Servicios Públicos de Brownsville 1425 Robinhood Drive, Brownsville Texas 78521 antes de la fecha de publicación de este aviso en el periódico. Este enlace a un mapa electrónico de la ubicación general del sitio o de la instalación es proporcionado como una cortesía y no es parte de la solicitud o del aviso. Para la ubicación exacta, consulte la solicitud. **https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdesapplications.**

AVISO ADICIONAL. El Director Ejecutivo de la TCEQ ha determinado que la solicitud es administrativamente completa y conducirá una revisión técnica de la solicitud. Después de completar la revisión técnica, el Director Ejecutivo puede preparar un borrador del permiso y emitirá una Decisión Preliminar sobre la solicitud. **El aviso de la solicitud y la decisión preliminar serán publicados y enviado a los que están en la lista de correo de las personas a lo largo del condado que desean recibir los avisos y los que están en la lista de correo que desean recibir avisos de esta solicitud. El aviso dará la fecha límite para someter comentarios públicos.**

COMENTARIO PUBLICO / REUNION PUBLICA. Usted puede presentar

comentarios públicos o pedir una reunión pública sobre esta solicitud. El propósito de una reunión pública es dar la oportunidad de presentar comentarios o hacer preguntas acerca de la solicitud. La TCEQ realiza una reunión pública si el Director Ejecutivo determina que hay un grado de interés público suficiente en la solicitud o si un legislador local lo pide. Una reunión pública no es una audiencia administrativa de lo contencioso.

OPORTUNIDAD DE UNA AUDIENCIA ADMINISTRATIVA DE LO CONTENCIOSO. Después del plazo para presentar comentarios públicos, el Director Ejecutivo considerará todos los comentarios apropiados y preparará una respuesta a todo los comentarios públicos esenciales, pertinentes, o significativos. **A menos que la solicitud haya sido referida directamente a una audiencia administrativa de lo contencioso, la respuesta a los comentarios y la decisión del Director Ejecutivo sobre la solicitud serán enviados por correo a todos los que presentaron un comentario público y a las personas que están en la lista para recibir avisos sobre esta solicitud. Si se reciben comentarios, el aviso también proveerá instrucciones para pedir una reconsideración de la decisión del Director Ejecutivo y para pedir una audiencia administrativa de lo contencioso.** Una audiencia administrativa de lo contencioso es un procedimiento legal similar a un procedimiento legal civil en un tribunal de distrito del estado.

PARA SOLICITAR UNA AUDIENCIA DE CASO IMPUGNADO, USTED DEBE INCLUIR EN SU SOLICITUD LOS SIGUIENTES DATOS: su nombre, dirección, y número de teléfono; el nombre del solicitante y número del permiso; la ubicación y distancia de su propiedad/actividad con respecto a la instalación; una descripción específica de la forma cómo usted sería afectado adversamente por el sitio de una manera no común al público en general; una lista de todas las cuestiones de hecho en disputa que usted presente durante el período de comentarios; y la declaración "[Yo/nosotros] solicito/solicitamos una audiencia de caso impugnado". Si presenta la petición para una audiencia de caso impugnado de parte de un grupo o asociación, debe identificar una persona que representa al grupo para recibir correspondencia en el futuro; identificar el nombre y la dirección de un miembro del grupo que sería afectado adversamente por la planta o la actividad propuesta; proveer la información indicada anteriormente con respecto a la ubicación del miembro afectado y su distancia de la planta o actividad propuesta; explicar cómo y porqué el miembro sería afectado; y explicar cómo los intereses que el grupo desea proteger son pertinentes al propósito del grupo.

Después del cierre de todos los períodos de comentarios y de petición que aplican, el Director Ejecutivo enviará la solicitud y cualquier petición para reconsideración o para una audiencia de caso impugnado a los Comisionados de la TCEQ para su consideración durante una reunión programada de la Comisión. La Comisión sólo puede conceder una solicitud de una audiencia de caso impugnado sobre los temas que el solicitante haya

presentado en sus comentarios oportunos que no fueron retirados posteriormente. Si se concede una audiencia, el tema de la audiencia estará limitado a cuestiones de hecho en disputa o cuestiones mixtas de hecho y de derecho relacionadas a intereses pertinentes y materiales de calidad del agua que se hayan presentado durante el período de comentarios. . Si ciertos criterios se cumplen, la TCEQ puede actuar sobre una solicitud para renovar un permiso sin proveer una oportunidad de una audiencia administrativa de lo contencioso.

LISTA DE CORREO. Si somete comentarios públicos, un pedido para una audiencia administrativa de lo contencioso o una reconsideración de la decisión del Director Ejecutivo, la Oficina del Secretario Principal enviará por correo los avisos públicos en relación con la solicitud. Ademas, puede pedir que la TCEQ ponga su nombre en una or mas de las listas correos siguientes (1) la lista de correo permanente para recibir los avisos de el solicitante indicado por nombre y número del permiso específico y/o (2) la lista de correo de todas las solicitudes en un condado especifico. Si desea que se agrega su nombre en una de las listas designe cual lista(s) y envia por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

CONTACTOS E INFORMACIÓN A LA AGENCIA. Todos los comentarios públicos y solicitudes deben ser presentadas electrónicamente vía http://www14.tceq.texas.gov/epic/eComment/ o por escrito dirigidos a la Comisión de Texas de Calidad Ambiental, Oficial de la Secretaría (Office of Chief Clerk), MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Tenga en cuenta que cualquier información personal que usted proporcione, incluyendo su nombre, número de teléfono, dirección de correo electrónico y dirección física pasarán a formar parte del registro público de la Agencia. Para obtener más información acerca de esta solicitud de permiso o el proceso de permisos, llame al programa de educación pública de la TCEQ, gratis, al 1-800-687-4040. Si desea información en Español, puede llamar al 1-800-687-4040.

También se puede obtener información adicional de La Junta de Servicios Públicos de Brownsville a la dirección indicada arriba o llamando al (956)983-6252.

Fecha de emission 11 de Julio del 2024