# SAFETY DATA SHEET

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

# Cracked Heavy Gas Oil (CHGO)

| Version | Revision Date: | SDS Number: | Print Date: 05/06/2023 |
|---|---|---|---|
| 1.0 | 09/03/2021 | 800010053314 | Date of last issue: - |

## SECTION 1. IDENTIFICATION

Product name : Cracked Heavy Gas Oil (CHGO)

Product code : 002D7449

**Manufacturer or supplier's details**

Manufacturer/Supplier : **Shell Chemicals – Deer Park**
PO Box 4453
HOUSTON TX 77210-4453
USA

SDS Request :

Customer Service : (+1) 877-276-7285

**Emergency telephone number**

Spill Information : +1-877-504-9351

Health Information : +1-877-242-7400

**Recommended use of the chemical and restrictions on use**

Restrictions on use : This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier.

## SECTION 2. HAZARDS IDENTIFICATION

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Flammable liquids : Category 4

Carcinogenicity : Category 2

Acute toxicity (Inhalation) : Category 4

Specific target organ toxicity - repeated exposure : Category 2 (Central nervous system)

Aspiration hazard : Category 1

Specific target organ toxicity - repeated exposure : Category 1 (Auditory system)

Specific target organ toxicity - single exposure : Category 3

Specific target organ toxicity - single exposure : Category 3

| | | |
|---|---|---|
| Skin irritation | : | Category 2 |
| Eye irritation | : | Category 2A |
| Long-term (chronic) aquatic hazard | : | Category 2 |

**GHS label elements**

Hazard pictograms :

Signal word : Danger

Hazard statements :

PHYSICAL HAZARDS:
H227 Combustible liquid.
HEALTH HAZARDS:
H351 Suspected of causing cancer.
H304 May be fatal if swallowed and enters airways.
H332 Harmful if inhaled.
H373 May cause damage to organs through prolonged or repeated exposure.
H372 Causes damage to organs through prolonged or repeated exposure.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
ENVIRONMENTAL HAZARDS:
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements :

**Prevention:**

P201 Obtain special instructions before use.
P210 Keep away from open flames/ hot surfaces. - No smoking.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P331 Do NOT induce vomiting.

**Storage:**

P405 Store locked up.
P403 Store in a well-ventilated place.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards which do not result in classification**

Hydrogen sulphide (H2S), an extremely flammable and toxic gas, and other hazardous vapours may evolve and collect in the headspace of storage tanks, transport vessels and other enclosed containers.
May dull the sense of smell, so do not rely on odour as an indication of hazard.
May ignite on surfaces at temperatures above auto-ignition temperature.
This material is a static accumulator.
Even with proper grounding and bonding, this material can still accumulate an electrostatic charge.
If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.
Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire.
Not classified as flammable but will burn.
Flammable vapours may be present even at temperatures below the flash point.
Therefore it should be treated as a potentially flammable liquid.
Contact with hot material can cause thermal burns which may result in permanent skin damage.
Repeated exposure may cause skin dryness or cracking.
The classification of this material is based on OSHA HCS 2012 criteria.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

**Hazardous components**

| Chemical name | Synonyms | CAS-No. | Concentration (% w/w) |
|---|---|---|---|
| Fuel Oil, Pyrolysis | Fuel oil, pyrolysis | 69013-21-4 | 100 |

Contains hydrogen sulphide, CAS # 7783-06-4.
Residues and their blends with distillates can be used as heavy fuel oils and need to be heated for use.

## SECTION 4. FIRST-AID MEASURES

If inhaled : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

In case of skin contact : Remove contaminated clothing.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses, if present and easy to do. Continue rinsing.
Transport to the nearest medical facility for additional treatment.

If swallowed : If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.
Rinse mouth.
Call emergency number for your location / facility.
If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath,

chest congestion or continued coughing or wheezing.

| | | |
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| Most important symptoms and effects, both acute and delayed | : | Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters.<br>Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.<br>If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever.<br>The onset of respiratory symptoms may be delayed for several hours after exposure.<br>Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, lightheadedness, headache and nausea.<br>Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.<br>Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing. |
| Protection of first-aiders | : | When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings. |
| Indication of any immediate medical attention and special treatment needed | : | Treat symptomatically.<br>Persons on disulfiram (Antabuse®) therapy should be aware that the ethyl alcohol in this product is hazardous to them just as is alcohol from any source. Disulfiram reactions (vomiting, headache and even collapse) may follow ingestion of small amounts of alcohol and have also been described from skin contact.<br>Physicians should be aware of the risk of significant methaemoglobinaemia.<br><br>Hydrogen sulphide (H2S) - CNS asphyxiant. May cause rhinitis, bronchitis and occasionally pulmonary oedema after severe exposure. CONSIDER: Oxygen therapy. Consult a Poison Control Center for guidance. |

## SECTION 5. FIRE-FIGHTING MEASURES

| | | |
|---|---|---|
| Suitable extinguishing media | : | Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. |
| Unsuitable extinguishing media | : | Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire.<br>Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. |
| Specific hazards during fire-fighting | : | Hydrogen sulphide (H2S) and toxic sulphur oxides may be given off when this material is heated. Do not depend on sense of smell for warning.<br>Hazardous combustion products may include:<br>A complex mixture of airborne solid and liquid particulates and |

gases (smoke).
Oxides of nitrogen
Oxides of sulphur.
Unidentified organic and inorganic compounds.
Flammable vapours may be present even at temperatures below the flash point.
The vapour is heavier than air, spreads along the ground and distant ignition is possible.
May float or sink in water and may reignite on water surface.
Carbon monoxide may be evolved if incomplete combustion occurs.

Specific extinguishing methods : Use water spray to cool unopened containers.

Further information : Keep adjacent containers cool by spraying with water.
If possible remove containers from the danger zone.
If the fire cannot be extinguished the only course of action is to evacuate immediately.
Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways.

Special protective equipment for firefighters : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

## SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : May ignite on surfaces at temperatures above auto-ignition temperature.
Do not breathe fumes, vapour.
Do not operate electrical equipment.

Environmental precautions : Take measures to minimise the effects on groundwater.
Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways.
Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.

Methods and materials for containment and cleaning up : Take precautionary measures against static discharges.
For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely

Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.

Observe all relevant local and international regulations.
Remove contaminated clothing.
Evacuate the area of all non-essential personnel.
Avoid contact with skin, eyes and clothing.
Ventilate contaminated area thoroughly.

Additional advice : For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet.
Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.
For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.
Local authorities should be advised if significant spillages cannot be contained.
Maritime spillages should be dealt with using a Shipboard Oil Pollution Emergency Plan (SOPEP), as required by MARPOL Annex 1 Regulation 26.

This material is covered by EPA's Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Petroleum Exclusion. Therefore, releases to the environment may not be reportable under CERCLA.
U.S. regulations may require reporting releases of this material to the environment which exceed the reportable quantity (refer to Section 15) to the National Response Center at (800) 424-8802.
Under Section 311 of the Clean Water Act (CWA) this material is considered an oil. As such, spills into surface waters must be reported to the National Response Center at (800) 424-8802.

## SECTION 7. HANDLING AND STORAGE

Technical measures : Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet.
Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Prevent spillages.
Contaminated leather articles including shoes cannot be decontaminated and should be destroyed to prevent reuse.
Ensure that all local regulations regarding handling and storage facilities are followed.

Advice on safe handling : The inherent toxic and olfactory (sense of smell) fatiguing properties of hydrogen sulphide require that air monitoring alarms be used if concentrations are expected to reach harm-

ful levels such as in enclosed spaces, heated transport vessels and spill or leak situations. If the air concentration exceeds 10 ppm, the area should be evacuated unless respiratory protection is in use.
Ensure that all local regulations regarding handling and storage facilities are followed.
Avoid prolonged or repeated contact with skin.
When using do not eat or drink.
Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks.
Earth all equipment.
Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.
Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.
Even with proper grounding and bonding, this material can still accumulate an electrostatic charge.
If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.
Be aware of handling operations that may give rise to additional hazards that result from the accumulation of static charges.
These include but are not limited to pumping (especially turbulent flow), mixing, filtering, splash filling, cleaning and filling of tanks and containers, sampling, switch loading, gauging, vacuum truck operations, and mechanical movements.
These activities may lead to static discharge e.g. spark formation.
Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/s until fill pipe submerged to twice its diameter, then ≤ 7 m/s). Avoid splash filling.
Do NOT use compressed air for filling, discharging, or handling operations.

Avoidance of contact : Strong oxidising agents.

Product Transfer : Avoid splash filling Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling ( for large storage tanks) before opening hatches or manholes. Keep containers closed when not in use. Refer to guidance under Handling section.

Further information on storage stability : Drum and small container storage:
Drums should be stacked to a maximum of 3 high.
Use properly labeled and closable containers.
Prevent ingress of water.
Tank storage:
Tanks must be specifically designed for use with this product.
Bulk storage tanks should be diked (bunded).
Locate tanks away from heat and other sources of ignition.
Tanks should be fitted with heating coils.
Ensure heating coils are always covered with product (minimum 15 cm).

Electrostatic charges will be generated during pumping.
Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk.
The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable.
Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.

Packaging material : Suitable material: For containers, or container linings use mild steel, stainless steel., Aluminium may also be used for applications where it does not present an unnecessary fire hazard., Examples of suitable materials are: high density polyethylene (HDPE) and Viton (FKM), which have been specifically tested for compatibility with this product., For container linings, use amine-adduct cured epoxy paint., For seals and gaskets use: graphite, PTFE, Viton A, Viton B.
Unsuitable material: Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Examples of materials to avoid are: natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), polyisobutylene., However, some may be suitable for glove materials.

Container Advice : Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.

Specific use(s) : Not applicable

See additional references that provide safe handling practices for liquids that are determined to be static accumulators: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity).
IEC/TS 60079-32-1: Electrostatic hazards, guidance
Consult the technical guidelines for the use of this substance/mixture.

## SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Components with workplace control parameters**

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|---|---|---|---|---|
| Hydrogen sulfide | 7783-06-4 | TWA | 1 ppm | ACGIH |
| | Further information: Central Nervous System impairment, Upper Respiratory Tract irritation | | | |

| | | | | |
|---|---|---|---|---|
| Hydrogen sulfide | | STEL | 5 ppm | ACGIH |
| | Further information: Central Nervous System impairment, Upper Respiratory Tract irritation | | | |
| Hydrogen sulfide | | CEIL | 20 ppm | OSHA Z-2 |
| Hydrogen sulfide | | Peak | 50 ppm (10 minutes once only if no other measured exposure occurs) | OSHA Z-2 |
| Hydrogen sulfide | | TWA | 1 ppm | ACGIH |
| Hydrogen sulfide | | STEL | 5 ppm | ACGIH |

**Biological occupational exposure limits**

No biological limit allocated.

**Monitoring Methods**

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.
Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.
National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/
Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/
Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances http://www.hse.gov.uk/
Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA) , Germany http://www.dguv.de/inhalt/index.jsp
L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil

**Engineering measures** : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:
Use sealed systems as far as possible.
Firewater monitors and deluge systems are recommended.
Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.
Local exhaust ventilation is recommended.
Eye washes and showers for emergency use.

General Information:

Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to

maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when there is potential for inhalation; clear up spills immediately and dispose of wastes safely.Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.
Do not ingest. If swallowed, then seek immediate medical assistance.

**Personal protective equipment**

Respiratory protection : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation.
Check with respiratory protective equipment suppliers.
Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.
Select a filter suitable for organic gases and vapours [boiling point >65 °C (149 °F)].
Where respiratory protective equipment is required, use a full-face mask.
Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.

Respirator selection, use and maintenance should be in accordance with the requirements of the OSHA Respiratory Protection Standard, 29 CFR 1910.134.

In areas where hydrogen sulphide vapours may accumulate, a positive-pressure air-supplied respirator is advised.

Hand protection
Remarks : Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replace-

ment regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material.

Eye protection : Wear goggles for use against liquids and gas.
Wear full face shield if splashes are likely to occur.
Chemical splash goggles (chemical monogoggles).

Skin and body protection : Wear chemical resistant gloves/gauntlets and boots. Where risk of splashing, also wear an apron.
Wear antistatic and flame-retardant clothing.

Protective measures : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Hygiene measures : Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

**Environmental exposure controls**

General advice : Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.
Information on accidental release measures are to be found in section 6.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|---|---|---|
| Appearance | : | liquid |
| Colour | : | Brown to black |
| Odour | : | Hydrocarbon |
| Odour Threshold | : | Data not available |
| pH | : | Not applicable |
| Freezing point | : | Not applicable |
| Boiling point/boiling range | : | >= 150 °C / >= 302 °F<br>Method: Unspecified |
| Flash point | : | 61 °C / 142 °F<br>Method: Unspecified |
| Evaporation rate | : | Data not available |
| Flammability (solid, gas) | : | Not applicable |

| | | |
|---|---|---|
| Upper explosion limit / upper flammability limit | : | Typical 5 %(V) |
| Lower explosion limit / Lower flammability limit | : | Typical 0.5 %(V) |
| Vapour pressure | : | 0.4 kPa (38.0 °C / 100.4 °F)<br>Method: Unspecified<br>Method: Unspecified<br>Not applicable |
| Relative vapour density | : | Data not available |
| Relative density | : | Data not available |
| Density | : | 840 - 1,200 kg/m3 (15.0 °C / 59.0 °F)<br>Method: Unspecified |
| Solubility(ies) | | |
| Water solubility | : | negligible |
| Solubility in other solvents | : | Data not available |
| Partition coefficient: n-octanol/water | : | Data not available |
| Auto-ignition temperature | : | > 250 °C / 482 °F |
| Decomposition temperature | : | Data not available |
| Viscosity | | |
| Viscosity, kinematic | : | Method: Unspecified<br>Not applicable<br>Method: Unspecified<br>Not applicable<br>30 - 700 mm2/s (50.0 °C / 122.0 °F)<br>Method: Unspecified |
| Explosive properties | : | Classification Code: Not classified. |
| Oxidizing properties | : | Not applicable |
| Conductivity | : | Low conductivity: < 100 pS/m, The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10,000 pS/m., Whether a liquid is nonconductive or semiconductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti- |

static additives can greatly influence the conductivity of a liquid

## SECTION 10. STABILITY AND REACTIVITY

| | | |
|---|---|---|
| Reactivity | : | Stable under recommended storage conditions. |
| Chemical stability | : | Stable under normal conditions of use. |
| Possibility of hazardous reactions | : | No hazardous reaction is expected when handled and stored according to provisions |
| Conditions to avoid | : | Avoid heat, sparks, open flames and other ignition sources.<br><br>In certain circumstances product can ignite due to static electricity. |
| Incompatible materials | : | Strong oxidising agents. |
| Hazardous decomposition products | : | Hydrogen sulphide.<br>Hazardous decomposition products are not expected to form during normal storage.<br>Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide, sulphur oxides and unidentified organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation. |

## SECTION 11. TOXICOLOGICAL INFORMATION

| | | |
|---|---|---|
| Basis for assessment | : | Information given is based on product testing, and/or similar products, and/or components.<br>Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s). |

**Information on likely routes of exposure**
Skin and eye contact are the primary routes of exposure although exposure may occur through inhalation or following accidental ingestion.

**Acute toxicity**

**Product:**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 Oral (Rat): > 300 - 2,000 mg/kg<br>Remarks: Harmful if swallowed. |
| Acute inhalation toxicity | : | LC50 (Rat): >20 mg/l<br>Exposure time: 4 h<br>Remarks: Low toxicity by inhalation. |
| Acute dermal toxicity | : | LD50 Dermal (Rabbit): > 2,000 - 5,000 mg/kg<br>Remarks: May be harmful in contact with skin. |

Acute toxicity (other routes of administration) : Remarks: Not expected to be a respiratory irritant.

**Skin corrosion/irritation**

**Product:**
Remarks: Irritating to skin.

**Serious eye damage/eye irritation**

**Product:**
Remarks: Expected to be irritating to eyes.

**Respiratory or skin sensitisation**

**Product:**
Remarks: Not a sensitiser.
Based on available data, the classification criteria are not met.

**Germ cell mutagenicity**

**Product:**

: Remarks: Not considered a mutagenic hazard.

Germ cell mutagenicity- Assessment : This product does not meet the criteria for classification in categories 1A/1B.

**Carcinogenicity**

**Product:**
Remarks: May cause cancer.

Carcinogenicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

| | |
|---|---|
| **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 on OSHA's list of regulated carcinogens. |
| **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. |

**Reproductive toxicity**

**Product:**

: Remarks: Not a developmental toxicant.

Reproductive toxicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

**STOT - single exposure**

**Product:**

Remarks: Inhalation of vapours or mists may cause irritation to the respiratory system., High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.

**STOT - repeated exposure**

**Product:**

Remarks: Kidney: caused kidney effects in male rats which are not considered relevant to humans

Remarks: Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Remarks: Contains Toluene, CAS # 108-88-3., Auditory system: prolonged and repeated exposures to high concentrations have resulted in hearing loss in rats. Solvent abuse and noise interaction in the work environment may cause hearing loss., This product contains a substance that induces methaemoglobinaemia.

**Aspiration toxicity**

**Product:**

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

**Further information**

**Product:**

Remarks: Abuse of vapours has been associated with organ damage and death.

## SECTION 12. ECOLOGICAL INFORMATION

Basis for assessment : Fuels are typically made from blending several refinery streams. Ecotoxicological studies have been carried out on a variety of hydrocarbon blends and streams but not those containing additives.
Information given is based on a knowledge of the components and the ecotoxicology of similar products.Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

**Ecotoxicity**

**Product:**

| | | |
|---|---|---|
| Toxicity to fish (Acute toxicity) | : | Remarks: Toxic<br>LL/EL/IL50 > 1 <= 10 mg/l |
| Toxicity to daphnia and other aquatic invertebrates (Acute toxicity) | : | Remarks: Toxic<br>LL/EL/IL50 > 1 <= 10 mg/l |
| Toxicity to algae (Acute toxicity) | : | Remarks: Toxic<br>LL/EL/IL50 > 1 <= 10 mg/l |
| Toxicity to fish (Chronic toxicity) | : | Remarks: Toxic with long lasting effects:<br>NOEC/NOEL > 0.01 - <=0.1 mg/l |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | Remarks: Toxic with long lasting effects:<br>NOEC/NOEL > 0.1 - <=1.0 mg/l |
| Toxicity to microorganisms (Acute toxicity) | : | Remarks: Toxic<br>LL/EL/IL50 > 1 <= 10 mg/l |

**Persistence and degradability**

**Product:**

| | | |
|---|---|---|
| Biodegradability | : | Remarks: Not readily biodegradable. |

**Bioaccumulative potential**

**Product:**

| | | |
|---|---|---|
| Bioaccumulation | : | Remarks: Contains constituents with the potential to bioaccumulate. |

**Mobility in soil**

**Product:**

| | | |
|---|---|---|
| Mobility | : | Remarks: no data available |

**Other adverse effects**

**Product:**

| | | |
|---|---|---|
| Results of PBT and vPvB assessment | : | The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB. |
| Additional ecological information | : | Not applicable |

## SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

Waste from residues : Recover or recycle if possible.
It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.
Do not dispose into the environment, in drains or in water courses
Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination.
Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
MARPOL - see International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides technical aspects at controlling pollutions from ships.

Contaminated packaging : Send to drum recoverer or metal reclaimer.
Drain container thoroughly.
After draining, vent in a safe place away from sparks and fire.
Residues may cause an explosion hazard if heated above the flash point. Do not puncture, cut or weld uncleaned drums.
Do not pollute the soil, water or environment with the waste container.
Comply with any local recovery or waste disposal regulations.

**Local legislation**

Remarks : Disposal should be in accordance with applicable regional, national, and local laws and regulations.
Local regulations may be more stringent than regional or national requirements and must be complied with.

## SECTION 14. TRANSPORT INFORMATION

**National Regulations**

**US Department of Transportation Classification (49 CFR Parts 171-180)**

| | | |
|---|---|---|
| UN/ID/NA number | : | NA 1993 |
| Proper shipping name | : | Combustible liquid, nos<br>(Fuel oil, pyrolysis) |
| Class | : | CBL |
| Packing group | : | III |
| Labels | : | NON |
| ERG Code | : | 128 |
| Marine pollutant | : | no |

**International Regulations**

**IATA-DGR**

| | | |
|---|---|---|
| UN/ID No. | : | UN 3082 |
| Proper shipping name | : | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.<br>(Fuel oil, pyrolysis) |
| Class | : | 9 |
| Packing group | : | III |
| Labels | : | 9 |

**IMDG-Code**

| | | |
|---|---|---|
| UN number | : | UN 3082 |
| Proper shipping name | : | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.<br>(Fuel oil, pyrolysis) |
| Class | : | 9 |
| Packing group | : | III |
| Labels | : | 9 |
| Marine pollutant | : | yes |

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied. MARPOL Annex 1 rules apply for bulk shipments by sea.

**Special precautions for user**

| | | |
|---|---|---|
| Remarks | : | Special Precautions: Refer to Section 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport. |

## SECTION 15. REGULATORY INFORMATION

**EPCRA - Emergency Planning and Community Right-to-Know Act**

*: This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

| | | |
|---|---|---|
| **SARA 311/312 Hazards** | : | Flammable (gases, aerosols, liquids, or solids)<br>Carcinogenicity<br>Acute toxicity (any route of exposure)<br>Specific target organ toxicity (single or repeated exposure)<br>Aspiration hazard<br>Skin corrosion or irritation<br>Serious eye damage or eye irritation |
| **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. |

**Clean Water Act**

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

**US State Regulations**

**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.

**Other regulations:**

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

**The components of this product are reported in the following inventories:**

TSCA : All components listed.

## SECTION 16. OTHER INFORMATION

**Further information**

NFPA Rating (Health, Fire, Reactivity) 2, 2, 0

**Full text of other abbreviations**

| | | |
|---|---|---|
| ACGIH | : | USA. ACGIH Threshold Limit Values (TLV) |
| OSHA Z-2 | : | USA. Occupational Exposure Limits (OSHA) - Table Z-2 |
| ACGIH / TWA | : | 8-hour, time-weighted average |
| ACGIH / STEL | : | Short-term exposure limit |
| ACGIH / STEL | : | Short-Term Exposure Limit (STEL) |
| OSHA Z-2 / CEIL | : | Acceptable ceiling concentration |
| OSHA Z-2 / Peak | : | Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift |
| Abbreviations and Acronyms | : | The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.<br><br>ACGIH = American Conference of Governmental Industrial Hygienists<br>ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road<br>AICS = Australian Inventory of Chemical Substances<br>ASTM = American Society for Testing and Materials<br>BEL = Biological exposure limits<br>BTEX = Benzene, Toluene, Ethylbenzene, Xylenes<br>CAS = Chemical Abstracts Service<br>CEFIC = European Chemical Industry Council<br>CLP = Classification Packaging and Labelling<br>COC = Cleveland Open-Cup<br>DIN = Deutsches Institut fur Normung<br>DMEL = Derived Minimal Effect Level |

DNEL = Derived No Effect Level
DSL = Canada Domestic Substance List
EC = European Commission
EC50 = Effective Concentration fifty
ECETOC = European Center on Ecotoxicology and Toxicology Of Chemicals
ECHA = European Chemicals Agency
EINECS = The European Inventory of Existing Commercial Chemical Substances
EL50 = Effective Loading fifty
ENCS = Japanese Existing and New Chemical Substances Inventory
EWC = European Waste Code
GHS = Globally Harmonised System of Classification and Labelling of Chemicals
IARC = International Agency for Research on Cancer
IATA = International Air Transport Association
IC50 = Inhibitory Concentration fifty
IL50 = Inhibitory Level fifty
IMDG = International Maritime Dangerous Goods
INV = Chinese Chemicals Inventory
IP346 = Institute of Petroleum test method N° 346 for the determination of polycyclic aromatics DMSO-extractables
KECI = Korea Existing Chemicals Inventory
LC50 = Lethal Concentration fifty
LD50 = Lethal Dose fifty per cent.
LL/EL/IL = Lethal Loading/Effective Loading/Inhibitory loading
LL50 = Lethal Loading fifty
MARPOL = International Convention for the Prevention of Pollution From Ships
NOEC/NOEL = No Observed Effect Concentration / No Observed Effect Level
OE_HPV = Occupational Exposure - High Production Volume
PBT = Persistent, Bioaccumulative and Toxic
PICCS = Philippine Inventory of Chemicals and Chemical Substances
PNEC = Predicted No Effect Concentration
REACH = Registration Evaluation And Authorisation Of Chemicals
RID = Regulations Relating to International Carriage of Dangerous Goods by Rail
SKIN_DES = Skin Designation
STEL = Short term exposure limit
TRA = Targeted Risk Assessment
TSCA = US Toxic Substances Control Act
TWA = Time-Weighted Average
vPvB = very Persistent and very Bioaccumulative

This product is intended for use in closed systems only.
A vertical bar (|) in the left margin indicates an amendment from the previous version.

Sources of key data used to compile the Safety Data Sheet :

The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).

Revision Date : 09/03/2021

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.

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