

**Texas Commission on Environmental Quality**  
**Form OP-UA48**  
**Reactor Attributes**

**General:**

This This form is used to provide a description and data pertaining to reactor with potentially applicable requirements associated with a particular account number and application. Each table number, along with the possibility of a corresponding letter (i.e., Table 1a, Table 1b), corresponds to a certain state or federal rule. If the rule on the table is not potentially applicable to a reactor, then it should be left blank and need not be submitted with the application. If the codes entered by the applicant show negative applicability to the rule or sections of the rule represented on the table, then the applicant need not complete the remainder of the table(s) that corresponds to the rule. Further instruction as to which questions should be answered and which questions should not be answered are located in the “Specific” section of the instruction text. The following is included in this form:

**Tables 1a - 1b:**      **Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60), Subpart III: Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes**

**Tables 2a - 2c:**      **Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60), Subpart RRR: Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes**

The application area name from Form OP-1 entitled, “Site Information Summary” must appear in the header of each page for the purpose of identification for the initial submittal. The date of the initial form submittal must also be included and should be consistent throughout the application (MM/DD/YYYY). **Leave the permit number blank for the initial form submittal.** If this form is included as part of the permit revision process, enter the permit number assigned by the TCEQ, the area name (from Form OP 1), and the date of the revision submittal.

The Texas Commission on Environmental Quality (TCEQ) **requires** that a Core Data Form be submitted on all incoming registrations unless **all** of the following are met: the Regulated Entity and Customer Reference Numbers have been issued by the TCEQ and no core data information has changed. The Central Registry, a common record area of the TCEQ which maintains information about TCEQ customers and regulated activities, such as company names, addresses, and telephone numbers. This information is commonly referred as “core data.” The Central Registry provides the regulated community with a central access point within the agency to check core data and make changes when necessary. When core data about a facility is moved to the Central Registry, two new identification numbers are assigned: the Customer Reference (CN) number and the Regulated Entity (RN) number. The Core Data Form is required if facility records are not yet part of the Central Registry or if core data for a facility has changed. If this is the initial registration, permit, or license for a facility site, then the Core Data Form must be completed and submitted with application or registration forms. If amending, modifying, or otherwise updating an existing record for a facility site, the Core Data Form is not required, unless any core data information has changed. To review additional information regarding the Central Registry, go to the TCEQ website at [www.tceq.texas.gov/permitting/central\\_registry](http://www.tceq.texas.gov/permitting/central_registry).

Unit attribute questions that do not require a response from all applicants are preceded by qualification criteria in the instructions. If the unit does not meet the qualification criteria, a response to the question is not required. **Anytime a response is not required based on the qualification criteria, leave the space on the form blank.**

Notwithstanding any qualification criteria in the form instructions or information provided in other TCEQ guidance, the applicant may leave an attribute question blank (or indicate “N/A” for “Not Applicable”) if the attribute is not needed for the applicable requirement determinations of a regulation for a unit.

In some situations, the applicant has the option of selecting alternate requirements, limitations, and/or practices for a unit. Note that these alternate requirements, limitations, and/or practices must have the required approval from the TCEQ Executive Director and/or the U.S. Environmental Protection Agency (EPA) Administrator before the federal operating permit application is submitted.

**Specific:**

**Table 1a:** Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60), Subpart III: Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes

- ★ Complete only for affected facilities that produce any chemicals listed in 40 CFR § 60.617 as a product, co-product, by product, or intermediate.

**Unit ID No.:**

Enter the identification number (ID No.) for the air oxidation reactor or combination of reactors (maximum 10 characters) as listed on Form OP-SUM.

**SOP Index No.:**

Site operating permit (SOP) applicants should indicate the SOP index number for the unit or group of units (maximum 15 characters consisting of numeric, alphanumeric characters, and/or dashes prefixed by a code for the applicable regulation [i.e., 60KB-XXXX]). For additional information relating to SOP index numbers, please refer to the TCEQ guidance document entitled “Federal Operating Permit Application Guidance Document.”

**Construction/Modification Date:**

Select one of the following codes that describes the date of commencement of the most recent construction, reconstruction, or modification. Enter the code on the form.

Code	Description
83-	On or before October 21, 1983
83+	After October 21, 1983

- ▼ Continue only if “Construction/Modification Date” is “83+.”

**Affected Facility:**

Select one of the following affected facility types. Enter the code on the form.

Code	Description
AIROX	Air oxidation reactor not discharging its vent stream into a recovery system
AIROXREC	Combination of an air oxidation reactor and recovery system into which its vent stream is discharged
2+AIROX	Combination of two or more air oxidation reactors and common recovery systems into which their vent streams are discharged
OTHER	Facility cannot be classified in any of the above categories

- ▼ Continue only if “Affected Facility” is “AIROX,” “AIROXREC,” or “2+AIROX.”

**TRE Index Value:**

Select one of the following total resource effectiveness (TRE) index values for the affected facility. Enter the code on the form.

Code	Description
4-	TRE index value is less than or equal to 4.0
4+	TRE index value is greater than 4.0
NCE	TRE index value is not calculated or claimed for exemption 40 CFR § 60.610(c)

**Control Device:**

Select one of the following methods for which the affected facility achieves compliance. Enter the code on the form.

Code	Description
TRE1+	The affected facility achieves compliance by maintaining a TRE index value greater than 1.0 without the use of VOC emission control devices
FLARE	The affected facility achieves compliance by combusting the emissions in a flare that meets the requirements of 40 CFR § 60.18
INCIN	Non-catalytic incinerator is used to comply with TOC emission limits
CATINC	Catalytic incinerator is used to comply with TOC emission limits
B44-	Boiler or process heater with design heat input capacity less than 44 MW (150 MMBTU/hr) is used to achieve compliance
B44+	Boiler or process heater with design heat input capacity greater than or equal to 44 MW (150 MMBTU/hr) is used to achieve compliance
OTHER	Compliance demonstration with control devices other than an incinerator, boiler, process heater, or flare has been approved by the EPA Administrator

**Control Device ID No.:**

If applicable, enter the identification number (maximum 10 characters) for the control device to which emissions are routed. This number should be consistent with the control device identification number listed on Form OP-SUM. Use multiple lines if more than one control device is used. If there is no control device, leave this column blank.

**Table 1b: Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60), Subpart III: Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes**

★ Complete only if “TRE Index Value” is “4-” or “NCE” and “Control Device” is “TRE1+.”

**Unit ID No.:**

Enter the identification number (ID No.) for the air oxidation reactor or combination of reactors (maximum 10 characters) as listed on Form OP-SUM.

**SOP Index No.:**

Site operating permit (SOP) applicants should indicate the SOP index number for the unit or group of units (maximum 15 characters consisting of numeric, alphanumeric characters, and/or dashes prefixed by a code for the applicable regulation [i.e., 60KB-XXXX]). For additional information relating to SOP index numbers, please refer to the TCEQ guidance document entitled “Federal Operating Permit Application Guidance Document.”

★ Complete “Recovery Device” only if “Control Device” is “TRE1+.”

**Recovery Device:**

Select one of the following options for the recovery device. Enter the code on the form.

Code	Description
ABS	Absorber used as the final recovery device
COND	Condenser used as the final recovery device
CARB	Carbon adsorber used as the final recovery device
OTHER	Compliance demonstration with a recovery device other than an absorber, condenser, or carbon adsorber which has been approved by the EPA Administrator

**Recovery Device ID No.:**

If applicable, enter the identification number (ID No.) for the final recovery device to which emissions are routed (maximum 10 characters). This number should be consistent with the control device identification number listed on Form OP-SUM. If there is no control device, leave this column blank.

★ Complete “AMOC ID No.” only if “Control Device” or “Recovery Device” is “OTHER.”

**AMOC ID No.:**

If an alternate method of control (AMOC) has been approved, then enter the corresponding AMOC unique identifier for each unit or process. If the unique identifier is unavailable, then enter the date of the AMOC approval letter. The unique identifier and/or the date of the approval letter is contained in the Compliance File under the appropriate account number. Otherwise, leave this column blank.

▼ Continue only if “Recovery Device” is “ABS,” “COND,” or “CARB.”

**TRE for Halogenated Vent Stream:**

Enter “YES” if the total resource effectiveness (TRE) index value is being calculated for a halogenated vent stream. Otherwise, enter “NO.”

**Organic Monitoring Device:**

Enter “YES” if an organic monitoring device is used to indicate the concentration level of organic compounds exiting the recovery device based on a detection principal. Otherwise, enter “NO.”

**Table 2a:** Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60), Subpart RRR: Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes

**Unit ID No.:**

Enter the identification number (ID No.) for the reactor process (or combination of reactor processes) (maximum 10 characters) as listed on Form OP-SUM.

**SOP Index No.:**

Site operating permit (SOP) applicants should indicate the SOP index number for the unit or group of units (maximum 15 characters consisting of numeric, alphanumeric characters, and/or dashes prefixed by a code for the applicable regulation [i.e., 60KB-XXXX]). For additional information relating to SOP index numbers, please refer to the TCEQ guidance document entitled “Federal Operating Permit Application Guidance Document.”

**Chemicals Listed in 40 CFR § 60.707:**

Enter “YES” if the affected facility is part of a process unit that produces any chemicals listed in 40 CFR § 60.707 as a product, co-product, by product, or intermediate. Otherwise, enter “NO.”

▼ Continue only if “Chemicals Listed in § 60.707” is “YES.”

**Construction/Modification Date:**

Select one of the following options that describes the date of commencement of the most recent construction, reconstruction, or modification. Enter the code on the form.

Code	Description
90-	On/or before June 29, 1990
90+	After June 29, 1990

▼ Continue only if “Construction/Modification Date” is “90+.”

**Affected Facility Type:**

Select one of the following options that describes the affected facility type. Enter the code on the form.

Code	Description
REACT	Reactor process not discharging its vent stream into a recovery system (reactor process is not designed and operated as a batch operation, does not produce beverage alcohol, and uses, contains, or produces VOC)
COMBO	Combination of a reactor process and the recovery system into which its vent stream is discharged (reactor process is not designed and operated as a batch operation, does not produce beverage alcohol, and uses, contains, or produces VOC)
2COMBO	Combination of two or more reactor processes and the common recovery system into which their vent streams are discharged (reactor process is not designed and operated as a batch operation, does not produce beverage alcohol, and uses, contains, or produces VOC)
BATCH	Reactor process that is designed and operated as a batch operation
BEVALC	Reactor process operating as a part of a process unit which produces beverage alcohols
NOVOC	Reactor process operating as a part of a process unit which uses, contains, and produces no VOC
OTHER	Facility cannot be classified in any of the above categories

▼ Continue only if “Affected Facility Type” is “REACT,” “COMBO,” or “2COMBO.”

**Subject to Title 40 CFR Part 60, Subpart DDD:**

Enter “YES” if the reactor process is subject to the provisions of Title 40 CFR Part 60, Subpart DDD. Otherwise, enter “NO.”

▼ Continue only if “Subject to NSPS DDD” is “NO.”

**Subject to Title 40 CFR Part 60, Subpart NNN:**

Enter “YES” if the vent stream is routed to a distillation unit subject to Title 40 CFR Part 60, Subpart NNN and has no other releases to the air except for a pressure relief valve. Otherwise, enter “NO.”

▼ Continue only if “Subject to Title 40 CFR Part 60, Subpart NNN” is “NO.”

**TRE Index Value:**

Select one of the following options that describes the total resource effectiveness (TRE) index value for the affected facility. Enter the code on the form.

Code	Description
8-	TRE index value is less than or equal to 8.0 or a TRE index value is not calculated or claimed for exemption 40 CFR § 60.700(c)(2)
8+	TRE index value is greater than 8.0

**TRE for Halogenated Vent Stream:**

Enter “YES” if a TRE index value is being calculated for a halogenated vent stream. Otherwise, enter “NO.”

**Table 2b:** Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60), Subpart RRR: Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes

▼ Continue only if “TRE” is “8-.”

**Unit ID No.:**

Enter the identification number (ID No.) for the reactor process (or combination of reactor processes) (maximum 10 characters) as listed on Form OP-SUM.

**SOP Index No.:**

Site operating permit (SOP) applicants should indicate the SOP index number for the unit or group of units (maximum 15 characters consisting of numeric, alphanumeric characters, and/or dashes prefixed by a code for the applicable regulation [i.e., 60KB-XXXX]). For additional information relating to SOP index numbers, please refer to the TCEQ guidance document entitled “Federal Operating Permit Application Guidance Document.”

**Total Design Capacity:**

Select one of the following options to describe the design capacity for all chemicals produced within the unit. Enter the code on the form.

Code	Description
1-	Total design capacity is less than 1 gigagram per year (1,100 tons per year)
1+	Total design capacity is greater than or equal to 1 gigagram per year (1,100 tons per year)

▼ Continue only if “Total Design Capacity” is “1+.”

**Vent Stream Flow Rate:**

Select one of the following options that describes the vent stream flow rate. Enter the code on the form.

Code	Description
11-	Vent stream flow rate is less than 0.011 scm/min
11+	Vent stream flow rate is greater than or equal to 0.011 scm/min or value is not measured

▼ Continue only if “Vent Stream Flow Rate” is “11+.”

**TOC Exemption:**

Select one of the following options that describes the total organic compounds (TOC) concentration exemption. Enter the code on the form.

Code	Description
18	Concentration of TOC, less methane and ethane, in the vent stream is less than 300 ppmv as measured by Method 18
25A	Concentration of TOC, less methane and ethane, in the vent stream is less than 150 ppmv as measured by Method 25A.
NOEX	No TOC concentration exemption

▼ Continue only if “TOC Exemption” is “NOEX.”

**Control Device:**

Select one of the following options that describes the control device. Enter the code on the form.

<b>Code</b>	<b>Description</b>
TRE1+	The affected facility achieves compliance by maintaining a TRE index value greater than or equal to 1.0 without the use of a VOC emission control device
FLARE	Flare that meets the requirements of 40 CFR § 60.18
INCIN	Incinerator other than a catalytic incinerator used as the control device
CATINC	Catalytic incinerator used as the control device
B44-	Boiler or process heater with design heat input less than 44 MW (150 MMBTU/hr)
B44+	Boiler or process heater with design heat input greater than or equal to 44 MW (150 MMBTU/hr)
OTHCD	Control device other than an incinerator, boiler, process heater, or flare, approved by the EPA Administrator

**Control Device ID No.:**

If applicable, enter the identification number (ID No. for the control device to which emissions are routed (maximum 10 characters). This number should be consistent with the control device identification number listed on Form OP-SUM. If there is no control device, leave this column blank

**Table 2c: Title 40 Code of Federal Regulation Part 60 (40 CFR Part 60), Subpart RRR: Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes**

**Unit ID No.:**

Enter the identification number (ID No.) for the reactor process (or combination of reactor processes) (maximum 10 characters) as listed on Form OP-SUM.

**SOP Index No.:**

Site operating permit (SOP) applicants should indicate the SOP index number for the unit or group of units (maximum 15 characters consisting of numeric, alphanumeric characters, and/or dashes prefixed by a code for the applicable regulation [i.e., 60KB-XXXX]). For additional information relating to SOP index numbers, please refer to the TCEQ guidance document entitled "Federal Operating Permit Application Guidance Document

★ **Complete "Secondary Fuel" only if "Control Device" is "B44-."**

**Secondary Fuel:**

Enter "YES" if the vent stream is introduced with the combustion air or as a secondary fuel. Otherwise, enter "NO."

★ **Complete "Bypass Line" only if "Control Device" is "FLARE," "INCIN," "CATINC," "B44-," or "B44+."**

**Bypass Line:**

Enter "YES" if there is a bypass line valve that could divert the vent stream around the control device and directly to the atmosphere. Otherwise, enter "NO."

★ **Complete "Bypass Line Valve Secured" only if "Bypass Line" is "YES."**

**Bypass Line Valve Secured:**

Enter "YES" if the bypass line valve is secured in the closed position with a car-seal or a lock-and-key type configuration. Otherwise, enter "NO."

★ **Complete "Recovery Device" only if "Control Device" is "TRE1+."**

**Recovery Device:**

Select one of the following options that describes the recovery device. Enter the code on the form.

<b>Code</b>	<b>Description</b>
ABS	Absorber used as the final recovery device
COND	Condenser used as the final recovery device
CARB	Carbon adsorber used as the final recovery device
OTHRD	Recovery device other than an absorber, condenser, or carbon adsorber is used as the final recovery device, approved by the EPA Administrator

**Recovery Device ID No.:**

If applicable, enter the identification number (ID No.) for the control device to which emissions are routed (maximum 10 characters). This number should be consistent with the control device identification number listed on Form OP-SUM. If there is no control device, leave this column blank.

★ **Complete “Organic Monitor” only if “Recovery Device” is “ABS,” “COND,” or “CARB.”**

**Organic Monitoring Device:**

Enter “YES” if an organic monitoring device is used to indicate the concentration level of organic compounds exiting the recovery device based on a detection principal. Otherwise, enter “NO.”



**Texas Commission on Environmental Quality**  
**Reactor Attributes**  
**Form OP-UA48 (Page 1)**  
**Federal Operating Permit Program**  
**Table 1a: Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60)**  
**Subpart III: Standards of Performance for Volatile Organic Compound Emissions from**  
**Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes**

<b>Date:</b>	
<b>Permit No.:</b>	
<b>Regulated Entity No.</b>	

Unit ID No.	SOP Index No.	Construction/ Modification Date	Affected Facility	TRE Index Value	Control Device	Control Device ID No.

**Texas Commission on Environmental Quality  
 Reactor Attributes  
 Form OP-UA48 (Page 2)  
 Federal Operating Permit Program**

**Table 1b: Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60)  
 Subpart III: Standards of Performance for Volatile Organic Compound Emissions from  
 Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes**

<b>Date:</b>	
<b>Permit No.:</b>	
<b>Regulated Entity No.</b>	

Unit ID No.	SOP Index No.	Recovery Device	Recovery Device ID No.	AMOC ID No.	TRE For Halogenated Vent Stream	Organic Monitoring Device

**Texas Commission on Environmental Quality  
Reactor Attributes  
Form OP-UA48 (Page 3)  
Federal Operating Permit Program**

**Table 2a: Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60)  
Subpart RRR: Standards of Performance for Volatile Organic Compound Emissions from  
Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes**

<b>Date:</b>	
<b>Permit No.:</b>	
<b>Regulated Entity No.</b>	

Unit ID No.	SOP Index No.	Chemicals Listed In § 60.707	Construction/ Modification Date	Affected Facility Type	Subject To Title 40 CFR Part 60, Subpart DDD	Subject To Title 40 CFR Part 60, Subpart NNN	TRE Index Value	TRE for Halogenated Vent Stream

**Texas Commission on Environmental Quality**  
**Reactor Attributes**  
**Form OP-UA48 (Page 4)**  
**Federal Operating Permit Program**

**Table 2b: Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60)**  
**Subpart RRR: Standards of Performance for Volatile Organic Compound Emissions from**  
**Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes**

<b>Date:</b>	
<b>Permit No.:</b>	
<b>Regulated Entity No.</b>	

Unit ID No.	SOP Index No.	Total Design Capacity	Vent Stream Flow Rate	TOC Exemption	Control Device	Control Device ID No.

**Texas Commission on Environmental Quality  
Reactor Attributes  
Form OP-UA48 (Page 5)  
Federal Operating Permit Program**

**Table 2c: Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60)  
Subpart RRR: Standards of Performance for Volatile Organic Compound Emissions from  
Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes**

<b>Date:</b>	
<b>Permit No.:</b>	

Unit ID No.	SOP Index No.	Secondary Fuel	Bypass Line	Bypass Line Valve Secured	Recovery Device	Recovery Device ID No.	Organic Monitoring Device