# REVISION TO REGISTRATION NO. 166223
# PERMITS-BY-RULE §106.261 AND §106.262

Prepared for
CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
La Porte, Harris County, Texas

May 2022

THE WCM GROUP, INC.
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ENVIRONMENTAL PROFESSIONALS

THE WCM GROUP, INC.
110 S. Bender Ave., Humble, TX 77338
P.O. Box 3247, Humble, TX 77347

May 16, 2022

Texas Commission on Environmental Quality
Air Permits Initial Review Team (MC 161)
12100 Park 35 Circle, Building C, Third Floor
Austin, TX 78753

VIA STEERS

REFERENCE: Clean Harbors Environmental Services, Inc.
Revision to Permit-By-Rule Registration No.166223
Tank Container Cleaning
2027 Independence Parkway S #100; La Porte, Harris County, Texas
CN600322796; RN111050555

Dear Sir or Madam,

The enclosed revised Permit-By-Rule (PBR) Registration package is submitted on behalf of Clean Harbors Environmental Services, Inc. The existing facility equipment and chemicals were previously authorized under Texas Commission on Environmental Quality (TCEQ) Permit-By-Rule (PBR) Registration No. 166223.

The enclosed document is being submitted to revise Registration No.166223 to authorize the use of existing equipment for new chemical service. The information contained in the registration document demonstrates that the cleaning operation continues to comply with TCEQ PBRs §106.261 and §106.262.

This package includes the TCEQ 30 TAC §106.4 Checklist, Facilities Workbook for §106.261 and §106.262, a summary of PBR applicability, a Process Description, and Emission Calculations for the new chemical(s) claimed under this PBR demonstrating compliance with emission limitations. This revised PBR registration is being submitted electronically through the TCEQ Air New Source Review e-Permits system. The PBR registration fee in the amount of $450.00 for the above referenced facility was submitted electronically through the TCEQ ePay system.

Should you have questions or concerns regarding this registration, or require further information, please do not hesitate to contact me at (281) 446-7070.

Sincerely,

Philip B. Evans

Philip B. Evans
Senior Vice President, Technical Services
pevans@wcmgroup.com

PBE/tnk
ENCLOSURE

cc: J. Carlson (Clean Harbors)
TCEQ Region 12

# LIST OF TCEQ FORMS

PI-7 CERT FORM (CERTIFICATION AND REGISTRATION FOR PERMITS-BY-RULE)

TCEQ §106.4 CHECKLIST (PERMIT-BY-RULE GENERAL APPLICABILITY)

TCEQ §106.261 and 106.262 WORKBOOK

TABLE 1(a) EMISSION POINT SUMMARY

**Texas Commission on Environmental Quality**
**Certification and Registration for Permits by Rule**
**Form PI-7-CERT**
**(Page 1)**

| | | |
|---|---|---|
| **I. Registrant Information** | | |
| A. Company or Other Legal Customer Name: Clean Harbors Environmental Services Inc. | | |
| B. Company Official Contact Information (☒ Mr. ☐ Mrs. ☐ Ms. ☐ Other _____) | | |
| Name: Bruce Riffel | | |
| Title: Sr. Environmental Compliance Manager | | |
| Mailing Address: 2027 Independence Pkwy S | | |
| City: La Porte | State: Texas | ZIP Code: 77571 |
| Phone: 281-930-2412 | Fax: | |
| E-mail Address: riffel.bruce@cleanharbors.com | | |
| *All PBR registration responses will be sent via e-mail.* | | |
| C. Technical Contact Information (☒ Mr. ☐ Mrs. ☐Ms. ☐ Other _____) | | |
| Name: Philip Evans | | |
| Title: Senior Vice President, Technical Services | | |
| Company Name: The WCM Group, Inc. | | |
| Mailing Address: P O Box 3247 | | |
| City: Humble | State: Texas | ZIP Code: 77347 |
| Phone: 281-446-7070 | Fax: 281-446-3348 | |
| E-mail: pevans@wcmgroup.com | | |
| **II. Facility and Site Information** | | |
| A. Name and Type of Facility | | |
| Facility Name: Clean Harbor Environmental Services | | |
| Type of Facility: | ☒ Permanent | ☐ Temporary |
| For portable units, please provide the serial number of the equipment being authorized below. | | |
| Serial No: | Serial No: | |
| B. Facility Location Information | | |
| Street Address: 2027 Independence Pkwy S | | |
| If there is no street address, provide written driving directions to the site and provide the closest city or town, county, and ZIP code for the site (attach description if additional space is needed). | | |
| | | |
| City: La Porte | County: Harris | ZIP Code: 77571 |

| **II. Facility and Site Information** *(continued)* | |
|---|---|
| C. TCEQ Core Data Form | |
| Is the Core Data Form (TCEQ Form Number 10400) attached? | ☐ YES ☒ NO |
| If "NO," provide customer reference number (CN) and regulated entity number (RN) below. | |
| Customer Reference Number (CN): CN600322796 | |
| Regulated Entity Number (RN): RN111050555 | |
| D. TCEQ Account Identification Number (if known): | |
| E. Type of Action: | |
| ☐ Initial Application ☒ Change to Registration | |
| For Change to Registration provide the Registration Number: 166223 | |
| F. PBR number(s) claimed under 30 TAC Chapter 106 | |
| (List all the individual rule number(s) that are being claimed.) | |
| 106.261 | 106. |
| 106.262 | 106. |
| 106. | 106. |
| G. Historical Standard Exemption or PBR | |
| Are you claiming a historical standard exemption or PBR? | ☐ YES ☒ NO |
| If "YES," enter rule number(s) and associated effective date in the spaces provided below. | |
| Rule Number(s) | Effective Date |
| | |
| | |
| H. Previous Standard Exemption or PBR Registration Number | |
| Is this authorization for a change to an existing facility previously authorized under a standard exemption or PBR? | ☒ YES ☐ NO |
| If "YES," enter previous standard exemption number(s) and PBR registration number(s), and associated effective dates in the spaces provided below. | |
| Standard Exemption and PBR Registration Number(s) | Effective Date |
| **Registration Number -166223** | **08/26/2021 (Revised 12/28/2021)** |
| | |

| **II. Facility and Site Information** *(continued)* | |
|---|---|
| I. Other Facilities at this Site Authorized by Standard Exemption, PBR, or Standard Permit | |
| Are there any other facilities at this site that are authorized by an Air Standard Exemption, PBR, or Standard Permit? | ☐ YES ☒ NO |
| If "YES," enter standard exemption number(s), PBR registration number(s), and Standard Permit registration number(s), and associated effective date in the spaces provided below. | |
| Standard Exemption, PBR Registration, and Standard Permit Registration Number(s) | Effective Date |
| | |
| | |
| J. Other Air Preconstruction Permits | |
| Are there any other air preconstruction permits at this site? | ☐ YES ☒ NO |
| If "YES," enter permit number(s) in the spaces provided below. | |
| | |
| | |
| K. Affected Air Preconstruction Permits | |
| Does the PBR being claimed directly affect any permitted facility? | ☐ YES ☒ NO |
| If "YES," enter the permit number(s) in the spaces provided below. | |
| | |
| | |
| L. Federal Operating Permit (FOP) Requirements (30 TAC Chapter 122 Applicability) | |
| 1. Is this facility located at a site that is required to obtain an FOP pursuant to 30 TAC Chapter 122? | ☐ YES ☒ NO ☐ To Be Determined |
| If the site currently has an existing FOP, enter the permit number: | |
| Check the requirements of 30 TAC Chapter 122 that will be triggered if this certification is accepted. *(check all that apply)*<br>☐ Initial Application for an FOP ☐ Significant Revision for an SOP ☐ Minor Revision for an SOP<br>☐ Operational Flexibility/Off Permit Notification for an SOP ☐ Revision for a GOP<br>☐ To be Determined ☒ None | |
| 2. Identify the type(s) of FOP issued and/or FOP application(s) submitted/pending for the site. *(check all that apply)*<br>☐ SOP ☐ GOP ☐ GOP application/revision (submitted or under APD review)<br>☐ N/A ☐ SOP application/revision (submitted or under APD review) | |

| | | |
|---|---|---|
| **III.** | **Fee Information (***See Section VII. for address to send fee or go to www.tceq.texas.gov/epay to pay online.)* | |
| A. | Fee Requirements | |
| Is a fee required per Title 30 TAC § 106.50? | | ☒ YES ☐ NO |
| If "NO," specify the exception. There are three exceptions to paying a PBR fee. | (*check all that apply*) | |
| 1. | Registration is solely to establish a federally enforceable emission limit. | ☐ |
| 2. | Registration is within six months of an initial PBR review, and it is addressing deficiencies, administrative changes, or other allowed changes. | ☐ |
| 3. | Registration is for a remediation project (30 TAC § 106.533). | ☐ |
| B. | Fee Amount | |
| 1. | A $100 fee is required if *any* of the answers in III.B.1 are "YES." | |
| This business has less than 100 employees. | | ☐ YES ☒ NO |
| This business has less than $6 million dollars in annual gross receipts. | | ☐ YES ☒ NO |
| This registration is submitted by a governmental entity with a population of less than 10,000. | | ☐ YES ☒ NO |
| This registration is submitted by a non-profit organization. | | ☐ YES ☒ NO |
| 2. | A $450 fee is required for all other registrations. | |
| C. | Payment Information | |
| Check/money order/transaction or voucher number: | | |
| Individual or company name on check: | | |
| Fee Amount: $450.00 | | |
| Was fee paid online? | | ☒ YES ☐ NO |
| **IV.** | **Technical Information Including State And Federal Regulatory Requirements**<br>**Check the appropriate box to indicate what is included in your submittal.**<br>**NOTE:** *Any technical or essential information needed to confirm that facilities are meeting the requirements of the PBR must be provided. Not providing key information could result in a deficiency of the project.* | |
| A. | PBR requirements (Checklists are optional; however, your review will go faster if you provide applicable checklists.) | |
| Did you demonstrate that the general requirements in 30 TAC § 106.4 are met? | | ☒ YES ☐ NO |
| Did you demonstrate that the individual requirements of the specific PBR are met? | | ☒ YES ☐ NO |
| B. | Confidential Information Included (If confidential information is submitted with this registration, all confidential pages must be properly marked "CONFIDENTIAL.") | ☐ YES ☒ NO |

| | | |
|---|---|---|
| **IV. Technical Information Including State and Federal Regulatory Requirements** *(continued)*<br>**Check the appropriate box to indicate what is included in your submittal.**<br>**Note:** Any technical or essential information needed to confirm that facilities are meeting the requirements of the PBR must be provided. Not providing key information could result in a deficiency of the project. | | |
| C. Process Flow Diagram | | ☒ YES ☐ NO |
| D. Process Description | | ☒ YES ☐ NO |
| E. Maximum Emissions Data and Calculations | | ☒ YES ☐ NO |
| ***Note:*** *If the facilities listed in this registration are subject to the Mass Emissions Cap & Trade program under* ***30 TAC Chapter 101, Subchapter H, Division 3,*** *the owner/operator of these facilities must possess $NO_x$ allowances equivalent to the actual $NO_x$, emissions from these facilities.* | | |
| F. Is this certification being submitted to certify the emissions for the entire site? | | ☐ YES ☒ NO |
| If "NO," include a summary of the specific facilities and emissions being certified. | | |
| G. Table 1(a) (Form 10153) Emission Point Summary | | ☒ YES ☐ NO |
| H. Distances from Property Line and Nearest Off-Property Structure | | |
| Distance from this facility's emission release point to the nearest property line: | | feet |
| Distance from this facility's emission release point to the nearest off-property structure: | | 290 feet |
| I. Project Status | | |
| Has the company implemented the project or waiting on a response from TCEQ? | | ☐ Implemented ☒ Waiting |
| J. Projected Start of Construction and Projected Start of Operation Dates | | |
| Projected Start of Construction (provide date): | | |
| Projected Start of Operation (provide date): | | |
| **V. Delinquent Fees** | | |
| This form **will not be processed** until all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ is paid in accordance with the Delinquent Fee and Penalty Protocol. For more information regarding Delinquent Fees and Penalties, go to the TCEQ website at: www.tceq.texas.gov/agency/financial/fees/delin/index.html. | | |

| **VI. Signature For Registration And Certification** |
|---|
| The signature below confirms that I have knowledge of the facts included in this application and that these facts are true and correct to the best of my knowledge and belief. I further state that to the best of my knowledge and belief, the project for which this application is made will not in any way violate any provision of the Texas Water Code (TWC), Chapter 7; the Texas Health and Safety Code, Chapter 382, the Texas Clean Air Act (TCAA); the air quality rules of the Texas Commission on Environmental Quality; or any local governmental ordinance or resolution enacted pursuant to the TCAA. I further state that I understand my signature indicates that this application meets all applicable nonattainment, prevention of significant deterioration, or major source of hazardous air pollutant permitting requirements. The signature further signifies awareness that intentionally or knowingly making or causing to be made false material statements or representations in the application is a criminal offense subject to criminal penalties. |
| Name (printed): |
| Mr. Bruce Riffel |
| Signature (original signature required): |
| |
| _____<br>Date |

## VII. Submitting Copies of the Certification and Registration

**Copies must be sent as listed below.**
**Processing delays may occur if copies are not sent as noted.**

| Who | Where | What |
|---|---|---|
| Air Permits Initial Review Team (APIRT) | Regular, Certified, Priority Mail<br>MC 161, P.O. Box 13087 Austin, Texas 78711-3087<br>Hand Delivery, Overnight Mail<br>MC 161, 12100 Park 35 Circle, Building C, Third Floor<br>Austin, Texas 78753 | Originals Form PI-7-CERT, Core Data Form, and all attachments. Not required if using ePermits[1]. |
| Revenue Section, TCEQ | Regular, Certified, Priority Mail<br>MC 214, P.O. Box 13088 Austin, Texas 78711-3088<br>Hand Delivery, Overnight Mail<br>MC 214, 12100 Park 35 Circle, Building A, Third Floor<br>Austin, Texas 78753 | Original Money Order or Check, Copy of Form PI-7-CERT, and Core Data Form. Not required if fee was paid using ePay[2]. |
| Appropriate TCEQ Regional Office | To find your Regional Office address, go to the TCEQ website at www.tceq.texas.gov/agency/directory/region, or call (512) 239-1250. | Copy of Form PI-7-CERT, Core Data Form, and all attachments. Not required if using ePermits[1] |
| Appropriate Local Air Pollution Control Program(s) | To Find your local or Regional Air Pollution Control Programs go to the TCEQ, APD website at www.tceq.texas.gov/permitting/air/local_programs.html, or call (512)-239-1250 | Copy of Form PI-7-CERT, Core Data Form, and all attachments. |

[1] ePermits located at www3.tceq.texas.gov/steers/
[2] ePay located at www.tceq.texas.gov/epay

**Texas Commission on Environmental Quality**

PBR Existing Registration

166223

## Site Information (Regulated Entity)

| | |
|---|---|
| What is the name of the site to be authorized? | CLEAN HARBORS ENVIRONMENTAL SERVICES |
| Does the site have a physical address? | Yes |
| **Physical Address** | |
| Number and Street | 2027 INDEPENDENCE PKWY S |
| City | LA PORTE |
| State | TX |
| ZIP | 77571 |
| County | HARRIS |
| Latitude (N) (##.######) | |
| Longitude (W) (-###.######) | |
| Primary SIC Code | |
| Secondary SIC Code | |
| Primary NAICS Code | 562998 |
| Secondary NAICS Code | |
| **Regulated Entity Site Information** | |
| What is the Regulated Entity's Number (RN)? | RN111050555 |
| What is the name of the Regulated Entity (RE)? | CLEAN HARBORS ENVIRONMENTAL SERVICES |
| Does the RE site have a physical address? | Yes |
| **Physical Address** | |
| Number and Street | 2027 INDEPENDENCE PKWY S # 100 |
| City | LA PORTE |
| State | TX |
| ZIP | 77571 |
| County | HARRIS |
| Latitude (N) (##.######) | |
| Longitude (W) (-###.######) | |
| Facility NAICS Code | |
| What is the primary business of this entity? | |

## Customer (Applicant) Information

| | |
|---|---|
| How is this applicant associated with this site? | Owner Operator |
| What is the applicant's Customer Number (CN)? | CN600322796 |
| Type of Customer | Corporation |
| **Full legal name of the applicant:** | |
| Legal Name | Clean Harbors Environmental Services, Inc. |
| Texas SOS Filing Number | 10068906 |
| Federal Tax ID | 42698999 |
| State Franchise Tax ID | 10426989991 |
| State Sales Tax ID | |
| Local Tax ID | |
| DUNS Number | |
| Number of Employees | 501+ |
| Independently Owned and Operated? | Yes |
| I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas. | Yes |
| **Responsible Authority Contact** | |

| | |
|---|---|
| Organization Name | Clean Harbors Environmental Services, Inc. |
| Prefix | MR |
| First | BRUCE |
| Middle | |
| Last | RIFFEL |
| Suffix | |
| Credentials | |
| Title | SR. ENVIRONMENTAL COMPLIANCE MANAGER |

**Responsible Authority Mailing Address**

| | |
|---|---|
| Enter new address or copy one from list: | |
| Address Type | Domestic |
| Mailing Address (include Suite or Bldg. here, if applicable) | 2027 INDEPENDENCE PKWY S |
| Routing (such as Mail Code, Dept., or Attn:) | |
| City | LA PORTE |
| State | TX |
| ZIP | 77571 |
| Phone (###-###-####) | 2819302412 |
| Extension | |
| Alternate Phone (###-###-####) | |
| Fax (###-###-####) | |
| E-mail | RIFFEL.BRUCE@CLEANHARBORS.COM |

## Responsible Official Contact

**Person TCEQ should contact for questions about this application:**

| | |
|---|---|
| Same as another contact? | |
| Organization Name | CLEAN HARBORS ENVIRONMENTAL SERVICES INC |
| Prefix | MR |
| First | BRUCE |
| Middle | |
| Last | RIFFEL |
| Suffix | |
| Credentials | |
| Title | SR. ENVIRONMENTAL COMPLIANCE MANAGER |
| Enter new address or copy one from list: | |

**Mailing Address**

| | |
|---|---|
| Address Type | Domestic |
| Mailing Address (include Suite or Bldg. here, if applicable) | 2027 INDEPENDENCE PKWY S |
| Routing (such as Mail Code, Dept., or Attn:) | |
| City | LA PORTE |
| State | TX |
| ZIP | 77571 |
| Phone (###-###-####) | 2819302412 |
| Extension | |
| Alternate Phone (###-###-####) | |
| Fax (###-###-####) | |
| E-mail | RIFFEL.BRUCE@CLEANHARBORS.COM |

## Technical Contact

**Person TCEQ should contact for questions about this application:**

| | |
|---|---|
| Same as another contact? | |
| Organization Name | THE WCM GROUP INC |

| | |
|---|---|
| Prefix | MR |
| First | PHILIP |
| Middle | |
| Last | EVANS |
| Suffix | |
| Credentials | |
| Title | SENIOR, VICE PRESIDENT OF TECHNICAL SERVICES |
| Enter new address or copy one from list: | |

**Mailing Address**

| | |
|---|---|
| Address Type | Domestic |
| Mailing Address (include Suite or Bldg. here, if applicable) | PO BOX 3247 |
| Routing (such as Mail Code, Dept., or Attn:) | |
| City | HUMBLE |
| State | TX |
| ZIP | 77347 |
| Phone (###-###-####) | 2814467070 |
| Extension | |
| Alternate Phone (###-###-####) | |
| Fax (###-###-####) | |
| E-mail | PEVANS@WCMGROUP.COM |

## PBR General Information - Existing Sites

| | |
|---|---|
| To determine fee amount does this business qualify as a small business, non-profit organization, or small government entity? | No |
| Are there any other registered air authorizations at this site? | No |
| Is this project located at a major site? | No |
| Does this registration require certification or is certification being submitted voluntarily? | Yes |
| Is the facility in compliance with all PBRs claimed? | Yes |
| Is the facility in compliance with all other applicable state/federal rules and regulations? | Yes |
| Is the facility in compliance with all applicable distance requirements? | Yes |

## Section 1# Rule Selection

### Rule#: 1

| | |
|---|---|
| Select the type of unit that is being registered. | FACILITIES (EMISSION LIMITATIONS) |
| Select the rule(s) associated to the unit specified. | 106.261 |

### Rule#: 2

| | |
|---|---|
| Select the type of unit that is being registered. | FACILITIES (EMISSION AND DISTANCE LIMITATIONS) |
| Select the rule(s) associated to the unit specified. | 106.262 |

## PBR Attachments

Please attach one PDF with all required documents to complete the project.

Please attach any other necessary information needed to complete the registration.

**Texas Commission on Environmental Quality**
**Permit by Rule Applicability Checklist**
**Title 30 Texas Administrative Code § 106.4**

The following checklist was developed by the Texas Commission on Environmental Quality (TCEQ), **Air Permits Division**, to assist applicants in determining whether or not a facility meets all of the applicable requirements. Before claiming a specific Permit by Rule (PBR), a facility must first meet all of the requirements of **Title 30 Texas Administrative Code § 106.4** (30 TAC § 106.4), "Requirements for Permitting by Rule." Only then can the applicant proceed with addressing requirements of the specific Permit by Rule being claimed.

The use of this checklist is not mandatory; however, it is the responsibility of each applicant to show how a facility being claimed under a PBR meets the general requirements of 30 TAC § 106.4 and also the specific requirements of the PBR being claimed. If all PBR requirements cannot be met, a facility will not be allowed to operate under the PBR and an application for a construction permit may be required under 30 TAC § 116.110(a).

Registration of a facility under a PBR can be performed by completing **Form PI-7** (Registration for Permits by Rule) or **Form PI-7-CERT** (Certification and Registration for Permits by Rule). The appropriate checklist should accompany the registration form. Check the most appropriate answer and include any additional information in the spaces provided. If additional space is needed, please include an extra page and reference the question number. The PBR forms, tables, checklists, and guidance documents are available from the TCEQ, Air Permits Division website at: www.tceq.texas.gov/permitting/air/nav/air_pbr.html.

| **1. 30 TAC § 106.4(a)(1) and (4): Emission Limits** | **Answer** |
|---|---|
| List emissions in tpy for **each** facility (add additional pages or table if needed): | |
| Are the $SO_2$, $PM_{10}$, VOC, or other air contaminant emissions claimed for **each** facility in this PBR submittal less than 25 tpy? | ☒ YES ☐ NO |
| Are the $NO_x$ and CO emissions claimed for each facility in this PBR submittal less than 250 tpy? | ☒ YES ☐ NO |
| *If the answer to both is "Yes," continue to the question below. If the answer to either question is "No," a **PBR cannot be claimed**.* | |
| Has any facility at the property had public notice and opportunity for comment under 30 TAC Section 116 for a regular permit or permit renewal? (This does not include public notice for voluntary emission reduction permits, grandfathered existing facility permits, or federal operating permits.) | ☐ YES ☒ NO |
| *If "Yes," skip to Section 2. If "No," continue to the questions below.* | |
| If the site has had no public notice, please answer the following: | |
| Are the $SO_2$, $PM_{10}$, VOC, or other emissions claimed for **all** facilities in this PBR submittal less than 25 tpy? | ☒ YES ☐ NO |
| Are the $NO_x$ and CO emissions claimed for all facilities in this PBR submittal less than 250 tpy? | ☒ YES ☐ NO |
| *If the answer to both questions is "Yes," continue to Section 2.* | |
| *If the answer to either question is "No," **a PBR cannot be claimed**. A permit will be required under Chapter 116.* | |

**Texas Commission on Environmental Quality**
**Permit by Rule Applicability Checklist**
**Title 30 Texas Administrative Code § 106.4**

| 2. 30 TAC § 106.4(a)(2): Nonattainment Check | Answer |
|---|---|
| Are the facilities to be claimed under this PBR located in a designated ozone nonattainment county? | ☒ YES ☐ NO |
| *If "Yes," please indicate which county by checking the appropriate box to the right.* | |
| (Moderate) - Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties: | ☒ HGB |
| (Moderate) - Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise counties: | ☐ DFW |
| *If "Yes," to any of the above, continue to the next question. If "No," continue to Section 3.* | |
| Does this project trigger a nonattainment review? | ☐ YES ☒ NO |
| Is the project's potential to emit (PTE) for emissions of VOC or $NO_x$ increasing by 100 tpy or more? | ☐ YES ☒ NO |
| *PTE is the maximum capacity of a stationary source to emit any air pollutant under its worst-case physical and operational design unless limited by a permit, rules, or made federally enforceable by a certification.* | |
| Is the site an existing major nonattainment site and are the emissions of VOC or $NO_x$ increasing by 40 tpy or more? | ☐ YES ☒ NO |
| *If needed, attach contemporaneous netting calculations per nonattainment guidance.* | |
| Additional information can be found at: www.tceq.texas.gov/permitting/air/forms/newsourcereview/tables/nsr_table8.html and www.tceq.texas.gov/permitting/air/nav/air_docs_newsource.html | |
| *If "Yes," to any of the above, the project is a major source or a major modification and **a PBR may not be used**. A Nonattainment Permit review must be completed to authorize this project. If "No," continue to Section 3.* | |
| **3. 30 TAC § 106.4(a)(3): Prevention of Significant Deterioration (PSD) check** | |
| Does this project trigger a review under PSD rules? | |
| To determine the answer, review the information below: | |
| Are emissions of any regulated criteria pollutant increasing by 100 tpy of any criteria pollutant at a named source? | ☐ YES ☒ NO |
| Are emissions of any criteria pollutant increasing by 250 tpy of any criteria pollutant at an unnamed source? | ☐ YES ☒ NO |
| Are emissions increasing above significance levels at an existing major site? | ☐ YES ☒ NO |
| PSD information can be found at: www.tceq.texas.gov/assets/public/permitting/air/Forms/NewSourceReview/Tables/10173tbl.pdf and www.tceq.texas.gov/permitting/air/nav/air_docs_newsource.html | |
| *If "Yes," to any of the above, **a PBR may not be used**. A PSD Permit review must be completed to authorize the project.* | |
| *If "No," continue to Section 4.* | |

| **4. 30 TAC § 106.4(a)(6): Federal Requirements** | **Answer** |
|---|---|
| Will all facilities under this PBR meet applicable requirements of Title 40 Code of Federal Regulations (40 CFR) Part 60, New Source Performance Standards (NSPS)? | ☐ YES ☐ NO ☒ NA |
| If "Yes," which Subparts are applicable? *(answer below.)* | |
| | |
| Will all facilities under this PBR meet applicable requirements of 40 CFR Part 63, Hazardous Air Pollutants Maximum Achievable Control Technology (MACT) standards? | ☐ YES ☐ NO ☒ NA |
| If "Yes," which Subparts are applicable? *(answer below.)* | |
| | |
| Will all facilities under this PBR meet applicable requirements of 40 CFR Part 61, National Emissions Standards for Hazardous Air Pollutants (NESHAPs)? | ☐ YES ☐ NO ☒ NA |
| If "Yes," which Subparts are applicable? *(answer below.)* | |
| | |
| *If "Yes" to any of the above, please attach a discussion of how the facilities will meet any applicable standards.* | |
| **5. 30 TAC § 106.4(a)(7): PBR prohibition check** | |
| Are there any air permits at the site containing conditions which prohibit or restrict the use of PBRs? | ☐ YES ☒ NO |
| *If "Yes," PBRs may not be used or their use must meet the restrictions of the permit. A new permit or permit amendment may be required.* | |
| *List permit number(s):* | |
| | |
| **6. 30 TAC § 106.4(a)(8): $NO_x$ Cap and Trade** | |
| Is the facility located in Harris, Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County? | ☒ YES ☐ NO |
| *If "Yes," answer the question below.* | |
| *If "No," continue to Section 7*. | |
| Will the proposed facility or group of facilities obtain required allowances for $NO_x$ if they are subject to 30 TAC Chapter 101, Subchapter H, Division 3 (relating to the Mass Emissions Cap and Trade Program)? | ☒ YES ☐ NO |

**Texas Commission on Environmental Quality**
**Permit by Rule Applicability Checklist**
**Title 30 Texas Administrative Code § 106.4**

| 7. Highly Reactive Volatile Organic Compounds (HRVOC) check | | |
|---|---|---|
| Is the facility located in Harris County? | | ☒ YES ☐ NO |
| *If "Yes," answer the next question. If "No," skip to the box below.* | | |
| Will the project be constructed after June 1, 2006? | | ☒ YES ☐ NO |
| *If "Yes," answer the next question.* | | |
| *If "No," skip to the box below.* | | |
| Will one or more of the following HRVOC be emitted as a part of this project? | | ☐ YES ☒ NO |
| *If "Yes," complete the information below:* | | |
| **Information** | **lb/hr** | **tpy** |
| ► 1,3-butadiene | | |
| ► all isomers of butene (e.g., isobutene [2-methylpropene or isobutylene]) | | |
| ► alpha-butylene (ethylethylene) | | |
| ► beta-butylene (dimethylethylene, including both cis- and trans-isomers) | | |
| ► ethylene | | |
| ► propylene | | |
| Is the facility located in Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County? | | ☐ YES ☒ NO |
| *If "Yes," answer the next question. If "No," the checklist is complete.* | | |
| Will the project be constructed after June 1, 2006? | | ☐ YES ☐ NO |
| *If "Yes," answer the next question. If "No," the checklist is complete.* | | |
| Will one or more of the following HRVOC be emitted as a part of this project? | | ☐ YES ☐ NO |
| *If "Yes," complete the information below:* | | |
| **Information** | **lb//hr** | **tpy** |
| ► ethylene | | |
| ► propylene | | |

## General Information

This sheet provides general rule information for both General Facility PBRs.

**Instructions:** Please fill out all yellow cells unless marked optional. Attach the federal applicability review to the application for each project.
An optional supplemental information field has been provided at the end of this worksheet. This field should be used for demonstration of rule or policy compliance.

| I. Project Information | |
|---|---|
| Company Name | Clean Harbors Environmental Services |
| Site Description | Transpor Tank Container Washout |
| General Project Description | Revision to Permit By Rule Registration for new chemical service |

| | |
|---|---|
| I acknowledge that I am submitting an authorized TCEQ workbook and any necessary attachments. Except for inputting the requested data and adjusting row height, I have not changed the TCEQ application workbook in any way, including but not limited to changing formulas, formatting, content, or protections. | I agree |
| Please indicate which rule, or both, are applicable to this project: | Both |
| Does this project authorize a new facility, modify an New Source Review (NSR) Case-by-Case existing permitted facility, or both? | Modify Existing |
| Is this site only authorized under Permits by Rule? | Yes |
| Is this located at a federal NSR major source (PSD or NNSR)? | No |
| Is a federal NSR applicability determination for each project attached in the application? | Yes |
| | |
| | |

| II. General Rule Requirements for §106.261 and/or §106.262 | |
|---|---|
| Has a §106.4 checklist or compliance demonstration been included in the documentation submitted to TCEQ? | Yes |
| Is this registration for construction of a facility authorized in another section of this chapter or for which a standard permit is in effect? | No |
| Are emission increases being authorized under §106.261 five tons per year or greater? | No |
| **Submit a notification by March 31 of the following year summarizing all uses of this permit by rule in the previous calendar year.** | |
| Is this registration for any change to any facility authorized under another section of this chapter or authorized under a standard permit? | No |
| Are facilities or changes located at least 100 feet from any recreational area or residence or other structure not occupied or used solely by the owner or operator of the facilities or the owner of the property upon which the facilities are located? | Yes |
| Are there any changes to or additions of any existing air pollution abatement equipment? | No |
| Will there be any visible emissions, except uncombined water, emitted to the atmosphere from any point or fugitive source in amounts greater than 5.0% opacity in any six-minute period? | No |
| In the row below, please include the following information for any pollution control equipment related to this registration: how the equipment operates, and the control efficiency achieved. | |
| C-SCRB - Wet caustic solution scrubber with dual packed columns designed for a minimum control efficiency of 99%.<br>CAS- Carbon adsorption system composed of two parallel trains of two 2,000 lb carbon canisters per train with a control efficiency of > 99%. | |
| Are one or more of the following chemicals is handled for this registration?<br>*For chemicals being authorized under §106.262 only* | N/A |

| |
|---|
| acrolein, allyl chloride, ammonia (anhydrous), arsine, boron trifluoride, bromine, carbon disulfide, chlorine, chlorine dioxide, chlorine trifluoride, chloroacetaldehyde, chloropicrin, chloroprene, diazomethane, diborane, diglycidyl ether, dimethylhydrazine, ethyleneimine, ethyl mercaptan, fluorine, formaldehyde (anhydrous), hydrogen bromide, hydrogen chloride, hydrogen cyanide, hydrogen fluoride, hydrogen selenide, hydrogen sulfide, ketene, methylamine, methyl bromide, methyl hydrazine, methyl isocyanate, methyl mercaptan, nickel carbonyl, nitric acid, nitric oxide, nitrogen dioxide, oxygen difluoride, ozone, pentaborane, perchloromethyl mercaptan, perchloryl fluoride, phosgene, phosphine, phosphorus trichloride, selenium hexafluoride, stibine, liquified sulfur dioxide, sulfur pentafluoride, and tellurium hexafluoride. |

| | |
|---|---|
| | |
| | |
| | |
| | |

| **III. Associated Emission Increases** | |
|---|---|
| Is this project related to physical or operational changes to facilities authorized under an NSR Case-by-Case | No |

| **IV. Hours of Operation** | |
|---|---|
| Does this project include only annual increases? | No |

| **Supplemental Information (Optional)** |
|---|
| |

Click here to go to the Project List sheet.

## Project List

This sheet provides general rule information for both General Facility PBRs.

**Instructions:**
This project list will identify various projects in the registration. Please list out the project names, distance to the nearest receptor, and a short project description and explanation for why the project was done. The distance to the nearest off-plant receptor shall be at least 100 feet, and the maximum limit in this workbook is 10,000 feet. Utilize the worst-case distance for each project.

| Project Number | Project Name | Distance to Nearest Receptor (ft.) | Description |
|---|---|---|---|
| 1 | Controlled Degassing | 290 | Controlled degassing of residual vapors from empty transport tankers |
| 2 | Uncontrolled Cleaning | 290 | Uncontrolled venting of residual vapors from empty tansport tankers |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |

## 30 TAC §106.261(a)(2) Checklist

This sheet provides compliance demonstration and emission limits for 30 TAC §106.261.

**Instructions:** Please fill out all yellow cells unless marked optional.

| | |
|---|---|
| Are there new or increased emissions listed under §106.261(a)(2), including fugitives, less than or equal to 6.0 pounds per hour (lb/hr) and ten tons per year? | Yes |

**Please select chemical and enter emission rates:**

*To search for contaminants, enter a keyword and then click on the drop-down for your results.*

| Project Name | Chemical | Emission Limit (lb/hr) | Emission Limit tpy | Hourly Emissions (lb/hr) | Annual Emissions (tpy) | Meets Limit? |
|---|---|---|---|---|---|---|
| Controlled Degassing | Isopropyl Alcohol | 6.00 | 10.00 | 1.97E-03 | 4.72E-03 | Yes |
| | | 6.00 | 10.00 | | | |
| | | 6.00 | 10.00 | | | |
| | | 6.00 | 10.00 | | | |
| | | 6.00 | 10.00 | | | |
| | | 6.00 | 10.00 | | | |
| | | 6.00 | 10.00 | | | |
| | | 6.00 | 10.00 | | | |
| | | 6.00 | 10.00 | | | |
| | | 6.00 | 10.00 | | | |
| | | 6.00 | 10.00 | | | |
| | | 6.00 | 10.00 | | | |
| | | 6.00 | 10.00 | | | |
| | | 6.00 | 10.00 | | | |
| | | 6.00 | 10.00 | | | |

## 30 TAC §106.261(a)(3) Checklist

This sheet provides compliance demonstration and emission limits for 30 TAC §106.261.

**Instructions:** Please fill out all yellow cells unless marked optional. Also, please note that emissions must be fully speciated and cannot have general categories listed (e.g. "Organics", "Unspeciated VOCs", "TSP").

| | |
|---|---|
| Are there new or increased emissions, including fugitives, less than or equal to 1.0 lb/hr of any chemical having a limit value (L) greater than 200 milligrams per cubic meter (mg/m3 ) as listed and referenced in Table 262 of 30 TAC § 106.262 (relating to Facilities (Emission and Distance Limitations)? | Yes |
| Are there new or increased emissions, including fugitives, less than or equal to 1.0 lb/hr of any chemical not listed or referenced in Table 262? | Yes |

**Please enter the chemical name, L value, and emission rates:**
*If there is no L value available for the chemical, then leave the L value blank.*

| Project Name | Chemical | L value (mg/m3) | Hourly Emissions (lb/hr) | Annual Emissions (tpy) | Is the L value greater than 200 $mg/m^3$? | Meets Limit? |
|---|---|---|---|---|---|---|
| Controlled Degassing | 2-Propenoic acid, homopolymer | | 2.58E-03 | 6.18E-03 | N/A | Yes |
| Controlled Degassing | Benzoic acid | | 1.17E-07 | 2.80E-07 | N/A | Yes |
| Controlled Degassing | 1,1-Dimethylcyclohexane | | 3.84E-06 | 9.22E-06 | N/A | Yes |
| Controlled Degassing | 2,2,3,3-Tetramethylbutane | | 2.55E-06 | 6.13E-06 | N/A | Yes |
| Controlled Degassing | Ethylcyclohexane | | 1.82E-06 | 4.38E-06 | N/A | Yes |
| Controlled Degassing | Trimethylaluminum | | 5.13E-04 | 1.23E-03 | N/A | Yes |
| Controlled Degassing | Benzene, Ethylenated,By Product F | | 2.09E-02 | 5.02E-02 | N/A | Yes |
| Controlled Degassing | Polyethylene | | 2.38E-07 | 5.71E-07 | N/A | Yes |
| Controlled Degassing | Ammonium Hydroxide | | 5.90E-05 | 1.42E-04 | N/A | Yes |
| Controlled Degassing | Ammonium Sulfide | | 2.31E-03 | 5.53E-03 | N/A | Yes |
| Controlled Degassing | Polysulfides (as sodium polysulfide) | | 7.11E-08 | 1.71E-07 | N/A | Yes |
| Controlled Degassing | Chloretone (chlorobutanol) | | 7.23E-08 | 1.73E-07 | N/A | Yes |
| Controlled Degassing | Aluminum Hydroxide | | 1.33E-09 | 3.20E-09 | N/A | Yes |
| Controlled Degassing | Mineral Oil | | 7.73E-08 | 1.86E-07 | N/A | Yes |
| Controlled Degassing | Octene | | 8.82E-03 | 2.12E-02 | N/A | Yes |
| Controlled Degassing | Poly-Alphaolefins (as 1-Decene, ho | | 2.67E-07 | 6.40E-07 | N/A | Yes |
| Controlled Degassing | 2-Methyldecanal | | 3.98E-06 | 9.54E-06 | N/A | Yes |
| Controlled Degassing | 2-Methylene Undecanal | | 2.38E-07 | 5.71E-07 | N/A | Yes |
| Controlled Degassing | 2-Methylundecanal | | 2.78E-05 | 6.68E-05 | N/A | Yes |
| Controlled Degassing | Diesel | | 3.54E-05 | 8.51E-05 | N/A | Yes |
| Controlled Degassing | Severely Hydrotreated Base Oils (B | | 2.86E-07 | 6.86E-07 | N/A | Yes |
| Controlled | 3-Methyl-1-Butene (Isopentene) | | 9.46E-04 | 2.27E-03 | N/A | Yes |
| Controlled Degassing | Cis-1,3-Pentadiene(Cis-piperylene) | | 6.33E-04 | 1.52E-03 | N/A | Yes |
| Controlled Degassing | Cyclopentene | | 2.01E-03 | 4.82E-03 | N/A | Yes |
| Controlled Degassing | Fuel Oil | | 2.24E-06 | 5.37E-06 | N/A | Yes |

| Project Name | Chemical | L value (mg/m3) | Hourly Emissions (lb/hr) | Annual Emissions (tpy) | Is the L value greater than 200 $mg/m^3$? | Meets Limit? |
|---|---|---|---|---|---|---|
| Controlled Degassing | Ethylene, Polymer with 2-Propenoic | | 1.26E-04 | 3.02E-04 | N/A | Yes |
| Controlled Degassing | Aluminum Alkyls (Tributylaluminum | | 4.53E-06 | 1.09E-05 | N/A | Yes |
| Controlled Degassing | 2,6-Toluene Diisocyanate | | 1.88E-05 | 4.50E-05 | N/A | Yes |
| Controlled Degassing | TDI Polymer | | 2.92E-05 | 7.00E-05 | N/A | Yes |
| Controlled Degassing | Diaminodiphenyl Methane (DADP) | | 5.55E-06 | 1.33E-05 | N/A | Yes |
| Controlled Degassing | 1,1,1,2-Tetrachloroethane | | 4.52E-04 | 1.09E-03 | N/A | Yes |
| Controlled Degassing | Olefinic Hydrocarbons (Octene) | | 1.63E-02 | 3.92E-02 | N/A | Yes |
| Controlled Degassing | 1,2,3,4-Tetrahydro-5-(1-phenylethyl) | | 1.43E-10 | 3.43E-10 | N/A | Yes |
| Controlled Degassing | 1,2,3,4-Tetrahydronaphthalene (Te | | 8.01E-07 | 1.92E-06 | N/A | Yes |
| Controlled Degassing | 1-BROMO-2-CHLOROETHANE | | 1.70E-05 | 4.07E-05 | N/A | Yes |
| Controlled Degassing | PENTACHLOROETHANE | | 2.08E-04 | 4.98E-04 | N/A | Yes |
| Controlled Degassing | Polyester Resin | | 8.69E-06 | 2.09E-05 | N/A | Yes |
| Controlled Degassing | Diesel Fuel | | 1.40E-04 | 3.36E-04 | N/A | Yes |
| Controlled Degassing | Fuel Oil | | 7.64E-05 | 1.83E-04 | N/A | Yes |
| Controlled Degassing | 1,2-Dichloroethylene | 793 | 3.05E-03 | 7.31E-03 | Yes | Yes |
| Controlled Degassing | Acetone | 590 | 1.37E-02 | 3.29E-02 | Yes | Yes |
| Controlled Degassing | Cyclopentadiene | 203 | 1.41E-03 | 3.38E-03 | Yes | Yes |
| Controlled Degassing | Ethyl acetate | 1440 | 2.12E-03 | 5.08E-03 | Yes | Yes |
| Controlled Degassing | Ethyl benzene | 434 | 1.62E-03 | 3.89E-03 | Yes | Yes |
| Controlled Degassing | Ethyl Ether | 1210 | 5.25E-03 | 1.26E-02 | Yes | Yes |
| Controlled Degassing | Heptane | 350 | 1.26E-02 | 3.03E-02 | Yes | Yes |
| Controlled Degassing | Isooctyl alcohol | 266 | 3.24E-05 | 7.78E-05 | Yes | Yes |
| Controlled Degassing | Methanol | 262 | 4.51E-03 | 1.08E-02 | Yes | Yes |
| Controlled Degassing | Methyl Chloroform | 1910 | 2.03E-04 | 4.87E-04 | Yes | Yes |
| Controlled Degassing | Methyl ethyl ketone (MEK) | 590 | 1.31E-02 | 3.13E-02 | Yes | Yes |
| Controlled Degassing | Methyl isobutyl ketone | 205 | 3.59E-04 | 8.62E-04 | Yes | Yes |
| Controlled Degassing | n-Butyl acetate | 713 | 1.48E-02 | 3.54E-02 | Yes | Yes |
| Controlled Degassing | Octane | 350 | 1.45E-03 | 3.47E-03 | Yes | Yes |
| Controlled Degassing | Xylene (o-,m-, p-isomers) | 434 | 1.17E-04 | 2.81E-04 | Yes | Yes |
| Uncontrolled Cleaning | 2-METHYLNAPHTHALENE | | 1.56E-04 | 3.74E-04 | N/A | Yes |
| Uncontrolled Cleaning | ACENAPHTHENE | | 1.87E-07 | 4.49E-07 | N/A | Yes |

| Project Name | Chemical | L value (mg/m3) | Hourly Emissions (lb/hr) | Annual Emissions (tpy) | Is the L value greater than 200 $mg/m^3$? | Meets Limit? |
|---|---|---|---|---|---|---|
| Uncontrolled Cleaning | ACENAPHTHYLENE | | 2.38E-07 | 5.72E-07 | N/A | Yes |
| Uncontrolled Cleaning | ANTHRACENE | | 3.41E-09 | 8.18E-09 | N/A | Yes |
| Uncontrolled Cleaning | Vapor-Tech Carbonil ES** | | 2.91E-07 | 6.98E-07 | N/A | Yes |
| Uncontrolled Cleaning | 1,1-Dichloroethane | 405 | 3.36E-03 | 8.07E-03 | Yes | Yes |
| Uncontrolled Cleaning | 1,2-Dichloroethylene | 793 | 2.89E-03 | 6.94E-03 | Yes | Yes |
| Uncontrolled Cleaning | Propylene dichloride | 347 | 5.14E-02 | 1.23E-01 | Yes | Yes |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

## 30 TAC §106.262 Table 262 Checklist

This sheet provides compliance demonstration and emission limits for 30 TAC §106.262.

**Instructions:** Please fill out all yellow cells unless marked optional.

New or increased emissions, including fugitives, of chemicals shall not be emitted in a quantity greater than five tons per year nor in a quantity greater than E as determined using the equation E = L/K.

| Are the chemicals being registered included in Figure 2 - Table 262 of 30 TAC §106.262(a)(2)? | Yes |
|---|---|

*Chemicals listed in the 1997 Edition of the ACGIH TLV and BEI Guide are available in the next worksheet.*

**Please select chemical and enter emission rates:**

*To search for contaminants, enter a keyword and then click on the drop-down for your results.*

| Project Name | Chemical | L Value (mg/m3) | K value (from distance) | E, maximum Hourly Emission Limit (lb/hr) | Annual Emission Limit (tpy) | Actual Hourly Increases (lb/hr) | Actual Annual Increase (tpy) | Meets Limit? |
|---|---|---|---|---|---|---|---|---|
| Controlled Degassing | Acetaldehyde | 9 | 145.1 | 6.20E-02 | 2.72E-01 | 5.59E-03 | 1.34E-02 | Yes |
| Controlled Degassing | Benzene | 3 | 145.1 | 2.07E-02 | 9.06E-02 | 1.36E-02 | 3.27E-02 | Yes |
| Controlled Degassing | Butyl Alcohol, - | 76 | 145.1 | 5.24E-01 | 2.29E+00 | 1.06E-03 | 2.55E-03 | Yes |
| Controlled Degassing | Carbon Tetrachloride | 12 | 145.1 | 8.27E-02 | 3.62E-01 | 6.31E-04 | 1.51E-03 | Yes |
| Controlled Degassing | Chloroform | 10 | 145.1 | 6.89E-02 | 3.02E-01 | 5.16E-05 | 1.24E-04 | Yes |
| Controlled Degassing | Dicyclopentadiene | 3.1 | 145.1 | 2.14E-02 | 9.36E-02 | 2.43E-05 | 5.84E-05 | Yes |
| Controlled Degassing | Hydrogen Chloride | 1 | 145.1 | 6.89E-03 | 3.02E-02 | 2.41E-04 | 5.79E-04 | Yes |
| Controlled Degassing | Kerosene | 100 | 145.1 | 6.89E-01 | 3.02E+00 | 9.22E-03 | 2.21E-02 | Yes |
| Controlled Degassing | Methylene Chloride | 26 | 145.1 | 1.79E-01 | 7.85E-01 | 8.69E-02 | 2.09E-01 | Yes |
| Controlled Degassing | Perchloroethylene | 33.5 | 145.1 | 2.31E-01 | 1.01E+00 | 2.62E-02 | 6.30E-02 | Yes |
| Controlled Degassing | Styrene | 21 | 145.1 | 1.45E-01 | 6.34E-01 | 2.28E-04 | 5.47E-04 | Yes |
| Controlled Degassing | Trichloroethylene | 135 | 145.1 | 9.30E-01 | 4.08E+00 | 3.18E-03 | 7.62E-03 | Yes |
| Uncontrolled Cleaning | Benzene | 3 | 145.1 | 2.07E-02 | 9.06E-02 | 5.07E-03 | 1.22E-02 | Yes |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

## 30 TAC §106.262 TLV Checklist

This sheet provides compliance demonstration and emission limits for 30 TAC §106.262.

**Instructions:** Please fill out all yellow cells unless marked optional.

New or increased emissions, including fugitives, of chemicals shall not be emitted in a quantity greater than five tons per year nor in a quantity greater than E as determined using the equation E = L/K.

Are the chemicals being registered not listed in Figure 2, but have a published TLV in the 1997 Edition of the ACGIH TLV and BEI Guide? Yes

NOTE: The time weighted average (TWA) Threshold Limit Value (TLV) published by the American Conference of Governmental Industrial Hygienists (ACGIH), in its TLVs and BEIs guide **(1997 Edition)** shall be used for compounds not included in the table. The Short Term Exposure Level (STEL) or Ceiling Limit (annotated with a "C") published by the ACGIH shall be used for compounds that do not have a published TWA TLV. This section cannot be used if the compound is not listed in the table or does not have a published TWA TLV, STEL, or Ceiling Limit in the ACGIH TLVs and BEIs guide.

**Please select applicable chemicals from dropdown, and enter emission rates:**

*To search for contaminants, enter a keyword and then click on the drop-down for your results.*

| Project Name | Chemical | L Value (mg/m3 | K Value (from distance) | E, maximum Hourly Emission Limit (lb/hr) | Annual Emission Limit (tpy) | Actual Hourly Increases (lb/hr) | Actual Annual Increase (tpy) | Meets Limit? |
|---|---|---|---|---|---|---|---|---|
| Controlled Degassing | 1,1,2,2-Tetrachloroethane | 6.9 | 145.1 | 4.76E-02 | 2.08E-01 | 2.77E-04 | 6.66E-04 | Yes |
| Controlled Degassing | 1,1,2-Trichloroethane | 55 | 145.1 | 3.79E-01 | 1.66E+00 | 3.76E-03 | 9.03E-03 | Yes |
| Controlled Degassing | 1,3-Butadiene | 4.4 | 145.1 | 3.03E-02 | 1.33E-01 | 1.63E-03 | 3.91E-03 | Yes |
| Controlled Degassing | 1,3-Dichloropropene | 4.5 | 145.1 | 3.10E-02 | 1.36E-01 | 2.49E-02 | 5.98E-02 | Yes |
| Controlled Degassing | Acrylic acid | 5.9 | 145.1 | 4.07E-02 | 1.78E-01 | 7.44E-03 | 1.79E-02 | Yes |
| Controlled Degassing | Aniline and homologues | 7.6 | 145.1 | 5.24E-02 | 2.29E-01 | 3.16E-05 | 7.59E-05 | Yes |
| Controlled Degassing | Chlorobenzene | 46 | 145.1 | 3.17E-01 | 1.39E+00 | 1.09E-02 | 2.60E-02 | Yes |
| Controlled Degassing | Cyclohexanone | 100 | 145.1 | 6.89E-01 | 3.02E+00 | 9.70E-05 | 2.33E-04 | Yes |
| Controlled Degassing | Dibutyl phthalate | 5 | 145.1 | 3.45E-02 | 1.51E-01 | 3.60E-09 | 8.64E-09 | Yes |
| Controlled Degassing | Dicyclopentadiene | 27 | 145.1 | 1.86E-01 | 8.15E-01 | 2.43E-05 | 5.84E-05 | Yes |
| Controlled Degassing | Ethylene dichloride | 40 | 145.1 | 2.76E-01 | 1.21E+00 | 1.77E-02 | 4.25E-02 | Yes |
| Controlled Degassing | Hexane (n-Hexane) | 176 | 145.1 | 1.21E+00 | 5.00E+00 | 1.95E-03 | 4.68E-03 | Yes |
| Controlled Degassing | Hydroquinone | 2 | 145.1 | 1.38E-02 | 6.04E-02 | 3.13E-07 | 7.51E-07 | Yes |
| Controlled Degassing | Maleic anhydride | 1 | 145.1 | 6.89E-03 | 3.02E-02 | 8.23E-09 | 1.97E-08 | Yes |
| Controlled Degassing | Methylene bisphenyl Isocyana | 0.051 | 145.1 | 3.51E-04 | 1.54E-03 | 3.60E-11 | 8.63E-11 | Yes |

| Project Name | Chemical | L Value (mg/m3 | K Value (from distance) | E, maximum Hourly Emission Limit (lb/hr) | Annual Emission Limit (tpy) | Actual Hourly Increases (lb/hr) | Actual Annual Increase (tpy) | Meets Limit? |
|---|---|---|---|---|---|---|---|---|
| Controlled Degassing | Naphthalene | 52 | 145.1 | 3.58E-01 | 1.57E+00 | 1.91E-05 | 4.59E-05 | Yes |
| Controlled Degassing | Nitrobenzene | 5 | 145.1 | 3.45E-02 | 1.51E-01 | 1.60E-05 | 3.84E-05 | Yes |
| Controlled Degassing | o-Dichlorobenzene | 150 | 145.1 | 1.03E+00 | 4.53E+00 | 8.52E-07 | 2.05E-06 | Yes |
| Controlled Degassing | Toluene | 188 | 145.1 | 1.30E+00 | 5.00E+00 | 1.63E-02 | 3.91E-02 | Yes |
| Controlled Degassing | Toluene-2,4 diisocyante (TDI) | 0.036 | 145.1 | 2.48E-04 | 1.09E-03 | 2.92E-05 | 7.00E-05 | Yes |
| Uncontrolled Cleaning | 1,1,2-Trichloroethane | 55 | 145.1 | 3.79E-01 | 1.66E+00 | 5.72E-04 | 1.37E-03 | Yes |
| Uncontrolled Cleaning | 1,3-Dichloropropene | 4.5 | 145.1 | 3.10E-02 | 1.36E-01 | 2.49E-02 | 5.98E-02 | Yes |
| Uncontrolled Cleaning | Ethylene dichloride | 40 | 145.1 | 2.76E-01 | 1.21E+00 | 3.88E-02 | 9.30E-02 | Yes |
| | | | | | | | | |

## Emission Point Summary Table

The emission point summary table provided here is optional.

**Instructions:**
Please fill out the Emission Point Summary Table for the project emissions, including all emissions and rules being registered. Additional rows can be added if needed.

| EPN / Source Name | Rule(s) | VOC | | $NO_x$ | | CO | | $SO_2$ | | PM | | $PM_{10}$ | | $PM_{2.5}$ | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | lb/hr | tpy | lb/hr | tpy | lb/hr | tpy | lb/hr | tpy | lb/hr | tpy | lb/hr | tpy | lb/hr | tpy | lb/hr | tpy |
| Controlled (TV-STK-1 & TV-STK-2) | §106.261 | 2.09E-02 | 5.02E-02 | | | | | | | | | | | | | | |
| Controlled (TV-STK-1 & TV-STK-2) | §106.262 | 8.69E-02 | 2.09E-01 | | | | | | | | | | | | | | |
| Uncontrolled (TWR-1) | §106.261 | 5.14E-02 | 1.23E-01 | | | | | | | | | | | | | | |
| Uncontrolled (TWR-1) | §106.262 | 4.44E-02 | 1.07E-01 | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |
| **Total Emissions (tpy)** | | | 4.89E-01 | | 0.00E+00 | | 0.00E+00 | | 0.00E+00 | | 0.00E+00 | | 0.00E+00 | | 0.00E+00 | | 0.00E+00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum Operating Schedule** | **Hours/Day** | **Days/Week** | **Weeks/Year** | **Hours/Year** | | |
| **Notes** | | | | | | |

# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

## Table 1(a) Emission Point Summary

| Date: | November 2021 | Permit No.: | Registration No. 166223 | Regulated Entity No.: | 111050555 |
|---|---|---|---|---|---|
| Area Name: | Clean Harbors Environmental Services, Inc. | | | Customer Reference No.: | 600322796 |

Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.

| AIR CONTAMINANT DATA | | | | | |
|---|---|---|---|---|---|
| 1. Emission Point | | | 2. Component or Air Contaminant Name | 3. Air Contaminant Emission Rate | |
| (A) EPN | (B) FIN | (C) NAME | | (A) POUND | (B) TPY |
| TV-STK-1 & TVSTK-2 | TWR-1 | Container Cleaning Rack (controlled) | VOC | 0.027 | 0.065 |
| | | | ES | 0.006 | 0.014 |
| | | | IOC | 0.001 | 0.003 |
| TWR-1 | TWR-1 | Container Cleaning Rack (uncontrolled) | VOC | 1.771 | 4.249 |
| | | | ES | 0.009 | 0.021 |
| | | | IOC | 0.021 | 0.050 |
| TWT-1 | TWT-1 | Waste Water Tank 1 | VOC | 0.032 | 0.028 |
| | | | ES | 0.038 | 0.034 |
| | | | IOC | 0.000 | 0.000 |
| TWT-2 | TWT-2 | Waste Water Tank 2 | VOC | 0.032 | 0.028 |
| | | | ES | 0.038 | 0.034 |
| | | | IOC | 0.000 | 0.000 |
| TWT-3 | TWT-3 | Waste Water Tank 3 | VOC | 0.032 | 0.028 |
| | | | ES | 0.038 | 0.034 |
| | | | IOC | 0.000 | 0.000 |
| TWT-4 | TWT-4 | Waste Water Tank 4 | VOC | 0.032 | 0.028 |
| | | | ES | 0.038 | 0.034 |
| | | | IOC | 0.000 | 0.000 |
| TWL-1 | TWL-1 | Waste Water Loading | VOC | 0.164 | 0.016 |
| | | | ES | 0.191 | 0.019 |
| | | | IOC | 0.000 | 0.000 |
| TFUG | TFUG | Fugitives | VOC | 0.001 | 0.005 |
| | | | ES | 0.001 | 0.005 |
| | | | IOC | 0.001 | 0.005 |

**EPN = Emission Point Number**

**FIN = Facility Identification Number**

| | | |
|---|---|---|
| VOC | 2.089 | 4.449 |
| ES | 0.360 | 0.197 |
| IOC | 0.024 | 0.059 |

# INTRODUCTION

Clean Harbors Environmental Services, Inc. (Clean Harbors) operates a small tank container cleaning facility located at 2027 Independence Parkway S #100 in La Porte, Harris County, Texas. The facility conducts external and internal washing of empty transportation containers that last transported certain chemical mixtures. Equipment and associated emissions are authorized under Texas Commission on Environmental Quality (TCEQ) Permits-By-Rule (PBRs) §106.261, §106.262, and §106.472 via PBR registration No. 166223.

This submission seeks to revise PBR Registration No. 166223 to authorize the use of existing, previously authorized equipment for new chemical service. Existing equipment to be used includes the wash rack and the vapor abatement system consisting of a packed column wet scrubber (C-SCRB) with a vapor phase activated carbon adsorption system (CAS) composed of two (2) parallel carbon trains with each train consisting of two (2) 2,000 lb carbon bed canisters (TV-STK-1 and TV-STK-2).

This site is located in Harris County within the Houston/Galveston/Brazoria ozone nonattainment area and is currently classified as a minor source for nitrogen oxides ($NO_X$) and Volatile Organic Compounds (VOC). The emissions due to this project do not trigger federal Nonattainment New Source Review or Prevention of Significant Deterioration (PSD) permitting requirements.

The documentation contained in this registration demonstrates PBR authorization for the cleaning of new mixtures and chemicals and includes the TCEQ 30 TAC §106.4 Compliance Checklist, the TCEQ §106.261 and §106.262 Workbook, a summary discussion demonstrating applicability for each PBR claimed, a process description and emission calculations for each of the new chemicals claimed under these PBRs showing compliance with the applicable emission rate limitations. Additionally, a copy of the e-permits electronic PBR Registration Form is enclosed certifying the representations contained in this submittal. The $450 registration fee has been submitted via e-Permits. A site location map, aerial map, and site map and are provided in the Figures section.

# TABLE OF CONTENTS

# 1.0 PROCESS DESCRIPTION AND PROCESS FLOW DIAGRAM

Clean Harbors operates a tank container cleaning facility located at its La Porte site (RN102184173, 2027 Independence Parkway S #100, La Porte) in Harris County, Texas. Operations include empty container washing (internal and external cleaning) to prepare for inspection and change of service.

## 1.1 Process Description

The cleaning operation is conducted within a covered area composed of a single wash bay with equipment and structures used to access and clean empty transport containers. This area is referred to as the wash rack (EPN TWR-1). Prior to cleaning, any liquid residue (heel) pooled in the container is drained (de-heeled) and stored in a closed bucket, drum or other Department of Transportation (DOT) approved shipping container and returned to the customer or shipped off-site for disposal. A maximum of one (1) empty 7,000-gallon capacity transportation container can be cleaned per hour.

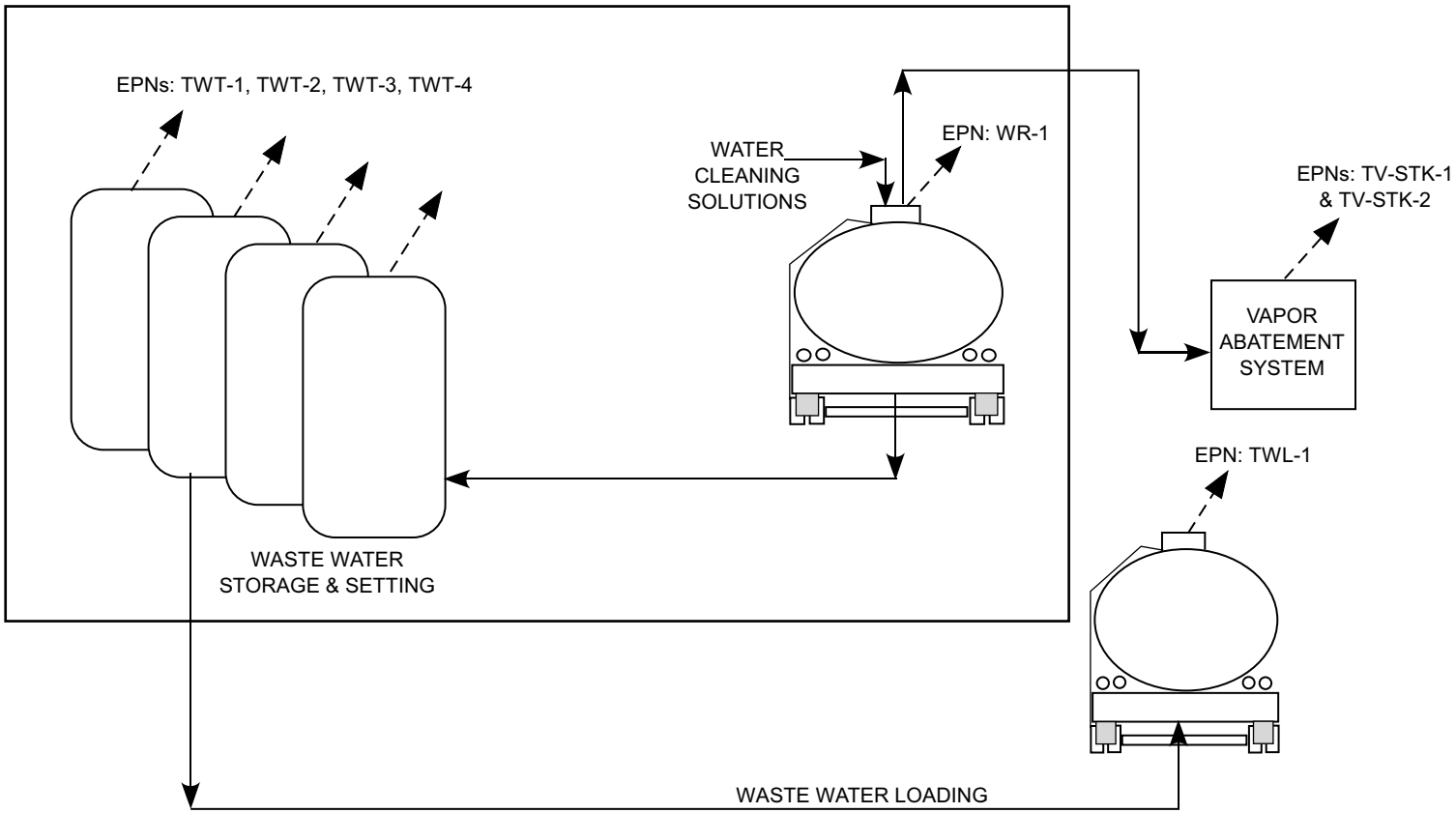
Empty tank containers that last held certain chemicals are first connected to a vapor collection header and suction blower to commence degassing prior to being opened to check for and drain any liquid heel. The containers are degassed to a vapor abatement system consisting of a packed column wet scrubber (C-SCRB) utilizing a scrubbing solution of five percent (5%) caustic to neutralize and absorb certain acidic vapor components with an efficiency of ninety-nine percent (99%), and Paratene or Carbonil (commercial surfactant blends designed for hydrocarbon encapsulation) to enhance absorption of other vapor components. The scrubber exhausts to a vapor phase activated CAS composed of two (2) parallel carbon trains with each train consisting of two (2) 2,000 lb carbon bed canisters. Each carbon canister is equipped with outlet sampling ports to monitor for VOC breakthrough when in use. Breakthrough is monitored in accordance with USEP Method 21 (40 CFR Part 60, Appendix A) and is defined as a VOC concentration greater than 50 ppmv measured at the outlet of the initial carbon canister in each train. This threshold limit results in a CAS control efficiency > 99%.

A 700 scfm suction blower is used to remove the vapors from the empty containers under negative pressure and route them to the abatement system after which the residual vapors are discharged to the atmosphere through two (2) vertical vent stacks (EPNs TV-STK-1 and TV-STK-2) located at the end of each carbon adsorption train. The minimum abatement level required for each of the new chemical mixtures addressed in this registration is identified in Section 2.0.

Internal cleaning is accomplished using a high pressure spinner assembly seated in the dome or top access of the container. Cleaning solutions, which may include caustic, detergent, surfactants and water, are pumped into the container through the spinner system, spraying the inside walls and solubilizing any remaining product residue that may be clinging to the interior surfaces.

## 1.2 Process Flow Diagram

A process flow diagram is included on the following page.





ENVIRONMENTAL PROFESSIONALS

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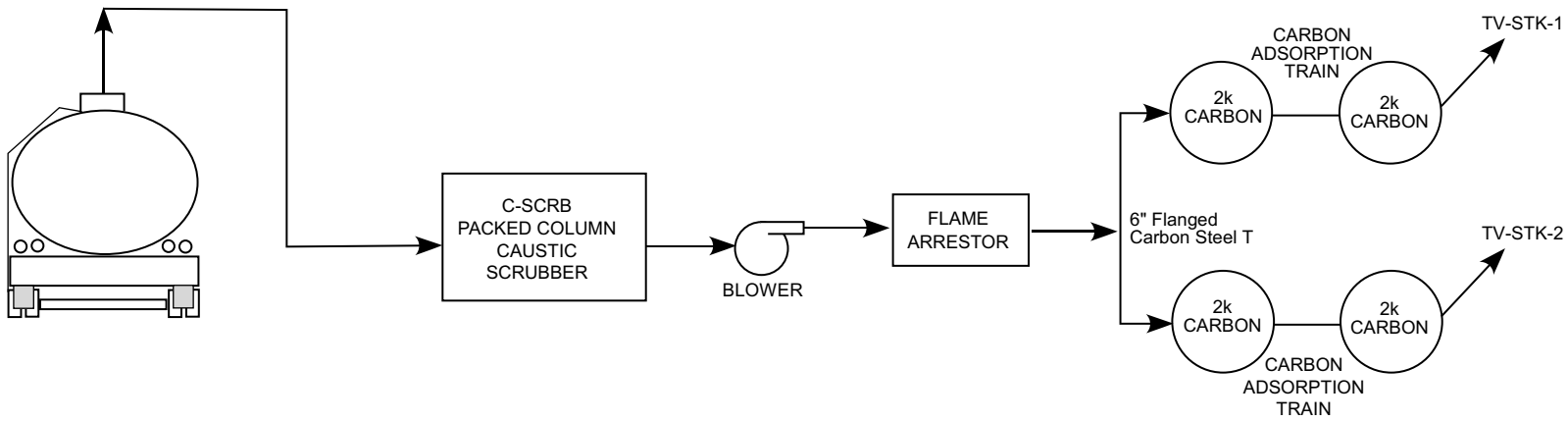
## NOTES:

– – –► TO ATMOSPHERE

# CONTAINER WASHING PROCESS FLOW

**CLEAN HARBORS ENVIRONMENTAL SERVICES**
**2027 INDEPENDENCE PARKWAY S.**
**LA PORTE, TEXAS**

| | |
|---|---|
| DRAWN BY: | LLB |
| DATE: | 08/05/2021 |
| REV. DATE: | |
| DRAWING ID: | Y:\CHES\DP\Figures\WASH PFD.cvx |





ENVIRONMENTAL PROFESSIONALS

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# VAPOR ABATEMENT SYSTEM
# PROCESS FLOW

## CLEAN HARBORS ENVIRONMENTAL SERVICES
## 2027 INDEPENDENCE PARKWAY S.
## LA PORTE, TEXAS

| | |
|---|---|
| DRAWN BY: | LLB |
| DATE: | 08/05/2021 |
| REV. DATE: | |
| DRAWING ID: | Y:\CHES\DP\Figures\ABATE PFD rev.cvx |

# 2.0 EMISSION SUMMARY

Source emissions and compliance with chemical emission rate limits specified by applicable PBRs for the new chemicals and mixtures are summarized in the tables listed below.

Emissions resulting from this project include VOCs, non-VOC Exempt Solvents (ES), and Inorganic Compounds (IOC) emitted from internal tank container washing. Total emissions of VOC, ES and IOC are contained in the "Summary of Registration Emissions".

Chemical emissions from internal tank container washing (EPNs TV-STK-1 and TV-STK-2) are authorized under PBRs §106.261 and §106.262. The facility washes empty tank containers that last transported chemicals and mixtures. Some of the same chemical constituents may appear in more than one (1) mixture at different concentrations. Emissions for each chemical and mixture have been calculated and each chemical constituent evaluated for PBR §106.261 and §106.262 compliance. The results are shown in the "Summary of Permits-By-Rule §106.261 and §106.262 Applicability". The required minimum abatement method for each mixture is shown in the "Summary of Chemical Mixtures and Required Abatement". Emission calculations at the maximum hourly and annual process rates for each chemical mixture are shown in Section 3.1.

Please note that each chemical mixture was evaluated based on the maximum hourly and annual process rate determined by its PBR compliant handling limits, up to the facility's maximum operating capacity of one (1) container per hour (or 7,000 gal/hr equivalent volume for smaller containers) and 4,800 containers per year (or 33,600 kgal/yr equivalent volume for smaller containers). Therefore, the speciated chemical emissions presented in the TCEQ PBRs §106.261 and §106.262 Workbook provided with this registration should not be summed to represent total cleaning process VOC emissions. Instead, the maximum emissions potential is represented by the worst case contributing stream for the cleaning emissions. The addition of the stream CH1962422 (TTC Ester Process Material) with this revised registration results in a slight increase in the maximum ES (Acetone) hourly and annual emission rates from EPN TWR-1. The addition of the stream CH121527B (ATM Mother Liquor Water) with this revised registration results in a slight increase in the maximum IOC hourly and annual emission rates from EPN TV-STK1/TV-STK2.

## 2.1 Emission Tables

- Summary of Registration Emissions;
- Summary of Permits-By-Rule §106.261 and §106.262 Applicability; and
- Summary of Chemical Mixtures and Required Abatement.

# SUMMARY OF REGISTRATION EMISSIONS

## SUMMARY OF REGISTRATION EMISSIONS

| | | | EMISSIONS (Current Registration) | | | | | | EMISSIONS (This Revision) | | | | | | EMISSIONS (Final Registration) | | | | | | 30 TAC §106 PBR Authorization |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Name | FIN | EPN | VOC lb/hr | VOC TPY | ES lb/hr | ES TPY | IOC lb/hr | IOC TPY | VOC lb/hr | VOC TPY | ES lb/hr | ES TPY | IOC lb/hr | IOC TPY | VOC lb/hr | VOC TPY | ES lb/hr | ES TPY | IOC lb/hr | IOC TPY | |
| Container Cleaning (controlled) | TWR-1 | TV-STK-1 & TVSTK-2 | 0.0273 | 0.0654 | 0.0059 | 0.0141 | 0.0010 | 0.0024 | 0.0209 | 0.0501 | 0.0050 | 0.0119 | 0.0015 | 0.0035 | 0.0273 | 0.0654 | 0.0059 | 0.0141 | **0.0015** | **0.0035** | 106.261/262 |
| Container Cleaning (uncontrolled) | TWR-1 | TWR-1 | 1.7705 | 4.2493 | 0.0039 | 0.0094 | 0.0209 | 0.0501 | 0.0772 | 0.1852 | 0.0087 | 0.0210 | 0.0009 | 0.0022 | 1.7705 | 4.2493 | **0.0087** | **0.0210** | 0.0209 | 0.0501 | 106.261/262 |
| Waste Water Tank 1 | TWT-1 | TWT-1 | 0.0316 | 0.0283 | 0.0383 | 0.0344 | 0.0000 | 0.00001 | 0.0316 | 0.0283 | 0.0383 | 0.0344 | 0.0000 | 0.00001 | 0.0316 | 0.0283 | 0.0383 | 0.0344 | 0.0000 | 0.0000 | 106.472 |
| Waste Water Tank 2 | TWT-2 | TWT-2 | 0.0316 | 0.0283 | 0.0383 | 0.0344 | 0.0000 | 0.00001 | 0.0316 | 0.0283 | 0.0383 | 0.0344 | 0.0000 | 0.00001 | 0.0316 | 0.0283 | 0.0383 | 0.0344 | 0.0000 | 0.0000 | 106.472 |
| Waste Water Tank 3 | TWT-3 | TWT-3 | 0.0316 | 0.0283 | 0.0383 | 0.0344 | 0.0000 | 0.00001 | 0.0316 | 0.0283 | 0.0383 | 0.0344 | 0.0000 | 0.00001 | 0.0316 | 0.0283 | 0.0383 | 0.0344 | 0.0000 | 0.0000 | 106.472 |
| Waste Water Tank 4 | TWT-4 | TWT-4 | 0.0316 | 0.0283 | 0.0383 | 0.0344 | 0.0000 | 0.00001 | 0.0316 | 0.0283 | 0.0383 | 0.0344 | 0.0000 | 0.00001 | 0.0316 | 0.0283 | 0.0383 | 0.0344 | 0.0000 | 0.0000 | 106.472 |
| Loading Losses | TWL-1 | TWL-1 | 0.1639 | 0.0157 | 0.1913 | 0.0188 | 0.0000 | 0.0000 | 0.1639 | 0.0157 | 0.1913 | 0.0188 | 0.0000 | 0.0000 | 0.1639 | 0.0157 | 0.1913 | 0.0188 | 0.0000 | 0.0000 | 106.472 |
| Fugitives | TFUG | TFUG | 0.0011 | 0.0050 | 0.0011 | 0.0050 | 0.0011 | 0.0050 | 0.0011 | 0.0050 | 0.0011 | 0.0050 | 0.0011 | 0.0050 | 0.0011 | 0.0050 | 0.0011 | 0.0050 | 0.0011 | 0.0050 | 106.472 |
| | | | | **4.449** | | **0.185** | | **0.058** | | **0.369** | | **0.194** | | **0.011** | | **4.449** | | **0.197** | | **0.059** | |

VOC = Volatile Organic Compounds
ES = Exempt Solvent (Acetone)
IOC = Inorganic Compounds
Note: wash rack emissions (FIN: TWR-1) include cleaning and heel removal emissions.

# SUMMARY OF PERMITS-BY-RULE

# §106.261 AND §106.262 APPLICABILITY

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

FDA Tails

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **126656-000B** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| 126656-000B | 1,4-Benzenediol (hydroquinone) * | 123-31-9 | 6.0 | 110.11 | 6.0E-05 | 0.0000 | VOC | No | | 2 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.01 | 0.06 | 0.0000 | 0.0000 | YES |
| 126656-000B | 10H-Phenothiazine * | 92-84-2 | 5.0 | 199.27 | 5.0E-07 | 0.0000 | VOC | No | | 5 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.03 | 0.15 | 0.0000 | 0.0000 | YES |
| 126656-000B | 2-Propenoic Acid (acrylic acid) | 79-10-7 | 50.0 | 72.06 | 0.172 | 0.0850 | VOC | No | | 5.9 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.04 | 0.18 | 0.0074 | 0.0179 | YES |
| 126656-000B | 2-Propenoic acid, 2-carboxyethyl ester * | 24615-84-7 | 60.0 | 144.13 | 1.0E-04 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 126656-000B | 2-Propenoic acid, homopolymer | 9003-01-4 | 30.0 | 144.12 | 0.0993 | 0.0147 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0026 | 0.0062 | YES |
| 126656-000B | Benzoic acid | 65-85-0 | 1.0 | 122.12 | 0.0001 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 126656-000B | Calcium * | 7440-70-2 | 2.7E-03 | 40.08 | 0.000 | 0.0000 | IOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 126656-000B | Chromium * | 7440-47-3 | 3.1E-05 | 52.00 | 0.000 | 0.0000 | IOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 126656-000B | Copper * | 7440-50-8 | 1.0E-05 | 63.55 | 0.000 | 0.0000 | IOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 126656-000B | Manganese * | 7439-96-5 | 3.9E-05 | 54.94 | 0.000 | 0.0000 | IOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | 152.0 | | | | | | | | | | | | | | | | | | |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emissions are generated from the empty container cleaning process. Therefore these compounds are not considered to be air comtaminants per TCEQ Guidance Memo (When shoulds a compound be considered an air contaminant) dated September 19, 1996.**

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Prodigy Spent Toluene

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **152500-000B** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| 152500-000B | Pentamethylcyclopentadienyl)(N-Propylcyclopentadienyl)zirconium dichloride* | 183541-62-0 | 0.10 | 404.53 | 0.0000 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 152500-000B | Benzene | 71-43-2 | 0.03 | 78.11 | 2.8786 | 0.0009 | VOC | No | 3 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.02 | 0.09 | 0.0000 | 0.0000 | YES |
| 152500-000B | 1,1-Dimethylcyclohexane | 590-66-9 | 0.030 | 112.21 | 0.8226 | 0.0002 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 152500-000B | 2,2,3,3-Tetramethylbutane | 594-82-1 | 0.02 | 114.23 | 1.0928 | 0.0001 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 152500-000B | Bis(2-(Pentamethylphenylamido)ethyl)amine dibenzyl * | -- | 0.50 | 442 | 0.0000 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 152500-000B | Ethylbenzene | 100-41-4 | 0.02 | 106.2 | 0.3869 | 0.0001 | VOC | No | | 434 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 152500-000B | Ethylcyclohexane | 1678-91-7 | 0.02 | 112.2 | 5.32E-01 | 0.0001 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 152500-000B | Methane | 74-82-8 | 0.02 | 16.0 | 14.7 | 0.0173 | Non-VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0001 | 0.0001 | YES |
| 152500-000B | p-Xylene | 106-42-3 | 0.02 | 106.2 | 0.3411 | 0.0000 | VOC | No | | 434 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 152500-000B | Silane, dichlorodimethyl-,reaction products with silica * | 68611-44-9 | 1.90 | 189.1 | 0.0000 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 152500-000B | Trimethylaluminum | 75-24-1 | 7.00 | 72.1 | 0.4710 | 0.0393 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0005 | 0.0012 | YES |
| 152500-000B | Toluene | 108-88-3 | 97.00 | 92.14 | 1.0418 | 0.9422 | VOC | No | | 188 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 1.30 | 5.00 | 0.0157 | 0.0378 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | 106.7 | | | | | | | | | | | | | | | | | | |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emissions are generated from the empty container cleaning process. Therefore these compounds are not considered to be air comtaminants per TCEQ Guidance Memo (When shoulds a compound be considered an air contaminant) dated September 19, 1996.**

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | | |
|---|---|---|
| Maximum individual container volume (gal) = | | 7000 |
| Maximum containers per hour (z) = | | 1 |
| Maximum process volume (kgal/hr) = | | 7 |
| Maximum containers per year (z) = | | 4800 |
| Maximum process volume (kgal/yr) = | | 33600 |
| [kgal = 1000 gal] | | |
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Dowtherm Q with plastic

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **153747-000B** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| 153747-000B | Benzene, Ethylenated,By Product From | 68608-82-2 | 97.0 | 182.26 | 0.0036 | 0.0022 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0209 | 0.0502 | YES |
| 153747-000B | Polyethylene | 9002-88-4 | 10.0 | 28.0310 | 0.0000 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | 107.0 | | | | | | | | | | | | | | | | | | |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emissions are generated from the empty container cleaning process. Therefore these compounds are not considered to be air comtaminants per TCEQ Guidance Memo (When shoulds a compound be considered an air contaminant) dated September 19, 1996.**

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | | |
|---|---|---|
| Maximum individual container volume (gal) = | | 7000 |
| Maximum containers per hour (z) = | | 1 |
| Maximum process volume (kgal/hr) = | | 7 |
| Maximum containers per year (z) = | | 4800 |
| Maximum process volume (kgal/yr) = | | 33600 |
| [kgal = 1000 gal] | | |
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Heptane

| Stream ID | Constituent(s) | CAS No. | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **60001T** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| 60001T | Heptane | 142-82-5 | 100.00 | 100.2 | 0.172 | 0.172 | VOC | No | 350 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0126 | 0.0303 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | 100.0 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Heavy Ends from EDC and VCM Production

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH69877B** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH69877B | 1,1,1-TRICHLOROETHANE | 71-55-6 | 0.3 | 133.4 | 4.152 | 0.011 | VOC | No | | 1910 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0002 | 0.0005 | YES |
| CH69877B | 1,1,2,2-TETRACHLOROETHANE | 79-34-5 | 3.0 | 167.8 | 0.285 | 0.006 | VOC | No | | 6.9 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.05 | 0.21 | 0.0001 | 0.0003 | YES |
| CH69877B | 1,1,2-TRICHLOROETHANE | 79-00-5 | 35.0 | 133.41 | 0.66 | 0.208 | VOC | No | | 55 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.38 | 1.66 | 0.0038 | 0.0090 | YES |
| CH69877B | 1-BROMO-2-CHLOROETHANE | 107-04-0 | 0.1 | 143.42 | 1.042 | 0.001 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH69877B | BENZENE | 71-43-2 | 0.2 | 78.11 | 3.227 | 0.010 | VOC | No | 3 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.02 | 0.09 | 0.0001 | 0.0003 | YES |
| CH69877B | CHLOROBENZENE | 108-90-7 | 3.0 | 112.56 | 0.4793 | 0.015 | VOC | No | | 46 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.32 | 1.39 | 0.0002 | 0.0006 | YES |
| CH69877B | ETHYLENE DICHLORIDE | 107-06-2 | 40.0 | 98.96 | 2.718 | 1.318 | VOC | No | | 40 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.28 | 1.21 | 0.0177 | 0.0425 | YES |
| CH69877B | PENTACHLOROETHANE | 76-01-7 | 5.0 | 202.3 | 0.255 | 0.008 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0002 | 0.0005 | YES |
| CH69877B | TETRACHLOROETHYLENE | 127-18-4 | 15.0 | 165.83 | 0.732 | 0.079 | VOC | No | 33.5 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.23 | 1.01 | 0.0018 | 0.0043 | YES |
| CH69877B | TRICHLOROETHYLENE | 79-01-6 | 0.2 | 131.39 | 2.448 | 0.004 | VOC | No | 135 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.93 | 4.08 | 0.0001 | 0.0002 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | 101.8 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

ATM Mother Liquor Water with Ammonium Sulfide and Caustic Soda

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH121527B** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH121527B | Ammonium Hydroxide | 1336-21-6 | 2.0 | 35.04 | 0.830 | 0.0097 | IOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0001 | 0.0001 | YES |
| CH121527B | Ammonium Sulfide | 12135-76-1 | 5.0 | 68.15 | 12.970 | 0.1947 | IOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0023 | 0.0055 | YES |
| CH121527B | Molybdenum * | 7439-98-7 | 0.1 | 95.94 | 0.000 | 0.0000 | IOC | No | | 10 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.07 | 0.30 | 0.0000 | 0.0000 | YES |
| CH121527B | Polysulfides (as sodium polysulfide) | 1344-08-7 | 2.0 | 57.07 | 0.001 | 0.0000 | IOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH121527B | Sodium Hydroxide * | 1310-73-2 | 10.0 | 40.0 | 3E-06 | 0.000 | IOC | No | | 2 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.01 | 0.06 | 0.0000 | 0.0000 | YES |
| CH121527B | Water | 7732-18-5 | 80.9 | 18.1 | 0.947 | 0.866 | H2O | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | NA | NA | NA | 0.0027 | 0.0065 | NA |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | 100.0 | | | | | | | | | | | | | | | | | | |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emissions are generated from the empty container cleaning process. Therefore these compounds are not considered to be air comtaminants per TCEQ Guidance Memo (When shoulds a compound be considered an air contaminant) dated September 19, 1996.**

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | | |
|---|---|---|
| Maximum individual container volume (gal) = | | 7000 |
| Maximum containers per hour (z) = | | 1 |
| Maximum process volume (kgal/hr) = | | 7 |
| Maximum containers per year (z) = | | 4800 |
| Maximum process volume (kgal/yr) = | | 33600 |
| [kgal = 1000 gal] | | |
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Oligomers

| Stream ID | Constituent(s) | CAS No. | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH286885B** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH286885B | Aliphatic Hydrocarbons (as Octane) | 111-65-9 | 10.0 | 114.2 | 0.5320 | 0.0524 | VOC | No | 350 | 1400 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0014 | 0.0035 | YES |
| CH286885B | Olefinic Hydrocarbons (Octene) | 111-66-0 | 90.0 | 112.22 | 0.6670 | 0.6013 | VOC | No | | NA | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0163 | 0.0392 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | 100.0 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Alkylation Brine

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH291905B** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH291905B | 1,2,3,4-Tetrahydro-5-(1-phenylethyl)-naphthalene * | 60466-61-7 | 1.0 | 236.40 | 3.7E-06 | 0.0000 | IOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH291905B | 1,2,3,4-Tetrahydronaphthalene (Tetralin) | 119-64-2 | 1.0 | 132.21 | 0.021 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH291905B | Sodium Sulfate * | 7757-82-6 | 14.0 | 142.04 | 0.000 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH291905B | Tetralin Sulfate (sulfuric acid tetralin alkylation sulfate salts) * | -- | 4.0 | 326.00 | 0.000 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH291905B | Water | 7732-18-5 | 87.0 | 18.10 | 0.961 | 0.9371 | H2O | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | NA | NA | NA | 0.0000 | 0.0000 | NA |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | 107.0 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

MEC Flush

| Stream ID | Constituent(s) | CAS No. | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH552527B-DE** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH552527B-DE | Dichloromethane | 75-09-2 | 100.0 | 84.93 | 13.642 | 13.6146 | VOC | No | 26 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.18 | 0.78 | 0.0869 | 0.2086 | YES |
| CH552527B-DE | Diphenylmethane-4,4'-Diisocyanate (MDI) | 101-68-8 | 0.5 | 250.25 | 1.9E-07 | 0.0000 | VOC | No | | 0.051 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.00 | 0.00 | 0.0000 | 0.0000 | YES |
| CH552527B-DE | MDI Mixed Isomers | 26447-40-5 | 0.1 | 250.25 | 4.1E-07 | 0.0000 | VOC | No | | 0.051 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.00 | 0.00 | 0.0000 | 0.0000 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | 100.6 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

TTC Ester Process Aqueous Material Stream

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH1915926** | | | | | | | | | | | | 7 | 33600 | 1 | 4800 | | | | | | |
| CH1915926 | Acetone | 67-64-1 | 10.0 | 58.08 | 7.510 | 0.3046 | ES | No | 590 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0031 | 0.0074 | YES |
| CH1915926 | Chloretone (chlorobutanol) | 6001-64-5 | 0.5 | 186.46 | 0.004 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH1915926 | Chloroform | 67-66-3 | 0.2 | 119.38 | 6.283 | 0.0025 | VOC | No | 10 | 49 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.07 | 0.30 | 0.0001 | 0.0001 | YES |
| CH1915926 | Heptane | 142-82-5 | 2.0 | 100.21 | 1.592 | 0.0075 | VOC | No | 350 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0001 | 0.0003 | YES |
| CH1915926 | Potassium Chloride * | 7440-49-7 | 30.0 | 74.55 | 0.000 | 0.0000 | IOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH1915926 | Potassium Hydroxide * | 1310-58-3 | 2.0 | 56.11 | 0.000 | 0.0000 | IOC | No | | 2 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.01 | 0.06 | 0.0000 | 0.0000 | YES |
| CH1915926 | Sodium Chloride * | 7440-23-5 | 10.0 | 58.44 | 0.000 | 0.0000 | IOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH1915926 | Sodium Hydroxide * | 1310-73-2 | 5.0 | 40.00 | 0.000 | 0.0000 | IOC | No | | 2 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.01 | 0.06 | 0.0000 | 0.0000 | YES |
| CH1915926 | Water | 7732-18-5 | 60.0 | 18.10 | 0.961 | 0.7503 | H2O | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | NA | NA | NA | 0.0024 | 0.0057 | NA |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | |
| | | | 119.7 | | | | | | | | | | | | | | | | | | |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emissions are generated from the empty container cleaning process. Therefore these compounds are not considered to be air comtaminants per TCEQ Guidance Memo (When shoulds a compound be considered an air contaminant) dated September 19, 1996.**

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

TTC Ester Process Material

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Pressure at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH1962422** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH1962422 | Acetone | 67-64-1 | 60 | 58.1 | 7.510 | 2.252 | ES | No | 590 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0137 | 0.0329 | YES |
| CH1962422 | Butanol | 71-36-3 | 20 | 74.12 | 0.294 | 0.023 | VOC | No | 76 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.52 | 2.29 | 0.0002 | 0.0004 | YES |
| CH1962422 | Heptane | 142-82-5 | 45 | 100.2 | 1.619 | 0.211 | VOC | No | 350 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0022 | 0.0053 | YES |
| CH1962422 | Hyrdochloric Acid | 7647-01-0 | 1 | 36.46 | 7.929 | 0.063 | VOC | No | 1 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.01 | 0.03 | 0.0002 | 0.0006 | YES |
| CH1962422 | Water | 7732-18-5 | 30 | 18.01 | 0.961 | 0.465 | H2O | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | NA | NA | NA | 0.0009 | 0.0021 | NA |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | 156.0 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Mixed Olefins with Aluminum Hydroxide and Water

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH2021230** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH2021230 | Aluminum Hydroxide | 21645-51-2 | 1.0 | 78.00 | 0.000 | 0.0000 | IOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH2021230 | Hexane | 110-54-3 | 3.0 | 86.18 | 4.876 | 0.1137 | VOC | No | | 176 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 1.21 | 5.00 | 0.0020 | 0.0047 | YES |
| CH2021230 | Mineral Oil | 8042-47-5 | 2.0 | 452.36 | 2.9E-04 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH2021230 | Octene | 111-66-0 | 99.0 | 112.21 | 0.668 | 0.3949 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0088 | 0.0212 | YES |
| CH2021230 | Poly-Alphaolefins (as 1-Decene, homopolymer) | 68037-01-4 | 2.0 | 750.0 | 0.001 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH2021230 | Water | 7732-18-5 | 10.0 | 18.01 | 0.961 | 0.3576 | H2O | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | NA | NA | NA | 0.0013 | 0.0031 | NA |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | 117.0 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Lights and Bottoms from Organic Aldehyde Production

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH2029747** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH2029747 | 2-Methyldecanal | 19009-56-4 | 50.0 | 170.29 | 0.004 | 0.0002 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH2029747 | 2-Methylene Undecanal | 22414-68-2 | 25.0 | 182.31 | 0.000 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH2029747 | 2-Methylundecanal | 110-41-8 | 25.0 | 184.32 | 0.055 | 0.0015 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0001 | YES |
| CH2029747 | Methanol | 67-56-1 | 50.0 | 32.04 | 4.467 | 1.3584 | VOC | No | | 262 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0045 | 0.0108 | YES |
| CH2029747 | Uncharacterized Aldehyde (as Acetaldehyde) | 75-07-0 | 10.0 | 44.05 | 27.660 | 1.2236 | VOC | No | 9 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.06 | 0.27 | 0.0056 | 0.0134 | YES |
| CH2029747 | Water | 7732-18-5 | 50.0 | 18 | 0.961 | 0.5202 | | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0010 | 0.0023 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | |
| | | | 210.0 | | | | | | | | | | | | | | | | | | |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emissions are generated from the empty container cleaning process. Therefore these compounds are not considered to be air comtaminants per TCEQ Guidance Memo (When shoulds a compound be considered an air contaminant) dated September 19, 1996.**

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Bulk Fuels for fuel blending

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH2128974B** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH2128974B | Benzene | 71-43-2 | 0.1 | 78.1 | 2.879 | 0.0028 | VOC | No | 3 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.02 | 0.09 | 0.0000 | 0.0001 | YES |
| CH2128974B | Diesel | 68476-34-6 | 15.0 | 130.0 | 0.022 | 0.0020 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0001 | YES |
| CH2128974B | Isooctyl Alcohol | 26952-21-6 | 40.0 | 130.2 | 0.008 | 0.0018 | VOC | No | | 266 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0001 | YES |
| CH2128974B | Isopropyl Alcohol | 67-63-0 | 10.0 | 60.1 | 1.831 | 0.2346 | VOC | No | | 983 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0020 | 0.0047 | YES |
| CH2128974B | Methyl ethyl Ketone | 78-93-3 | 40.0 | 72.1 | 3.038 | 1.2980 | VOC | No | | 590 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0131 | 0.0313 | YES |
| CH2128974B | Methyl Isobutyl Ketone | 108-10-1 | 5.0 | 100.2 | 0.669 | 0.0257 | VOC | No | | 205 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0004 | 0.0009 | YES |
| CH2128974B | Severely Hydrotreated Base Oils (Base Oils) | 64742-55-8 | 30.0 | 360.0 | 8.9E-05 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH2128974B | Toluene | 108-88-3 | 1.0 | 92.1 | 1.033 | 0.0086 | VOC | No | | 188 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 1.30 | 5.00 | 0.0001 | 0.0003 | YES |
| CH2128974B | Xylene | 1330-20-7 | 1.0 | 106.2 | 0.2694 | 0.0020 | VOC | No | | 434 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0001 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | |
| | | | 142.1 | | | | | | | | | | | | | | | | | | |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emissions are generated from the empty container cleaning process. Therefore these compounds are not considered to be air comtaminants per TCEQ Guidance Memo (When shoulds a compound be considered an air contaminant) dated September 19, 1996.**

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Red Oil with Benzene

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH2154863** | | | | | | | | | | | | 7 | 33600 | 1 | 4800 | | | | | | |
| CH2154863 | Cyclopentadiene | 542-92-7 | 1.2 | 66.1 | 13.234 | 0.199 | VOC | No | | 203 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0014 | 0.0034 | YES |
| CH2154863 | Cyclopentene | 142-29-0 | 1.9 | 68.1 | 11.908 | 0.275 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0020 | 0.0048 | YES |
| CH2154863 | Benzene | 71-43-2 | 53.3 | 78.11 | 2.879 | 1.628 | VOC | No | 3 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.02 | 0.09 | 0.0136 | 0.0327 | YES |
| CH2154863 | Toluene | 108-88-3 | 16.0 | 92.14 | 1.042 | 0.150 | VOC | No | | 188 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 1.30 | 5.00 | 0.0015 | 0.0036 | YES |
| CH2154863 | Styrene | 100-42-5 | 10.1 | 104.15 | 0.254 | 0.020 | VOC | No | 21 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.14 | 0.63 | 0.0002 | 0.0005 | YES |
| CH2154863 | Xylene | 1330-20-7 | 4.9 | 106.16 | 0.2694 | 0.010 | VOC | No | | 434 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0001 | 0.0003 | YES |
| CH2154863 | Ethylbenzene | 100-41-4 | 4.9 | 106.17 | 0.387 | 0.015 | VOC | No | | 434 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0002 | 0.0004 | YES |
| CH2154863 | Fuel Oil | 68476-30-2 | 2.1 | 136 | 0.012 | 0.000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH2154863 | Dicyclopentadiene | 77-73-9 | 3.3 | 132.2 | 0.083 | 0.002 | VOC | No | 3.1 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.02 | 0.09 | 0.0000 | 0.0001 | YES |
| CH2154863 | Water | 7732-18-5 | 1.0 | 18.1 | 0.947 | 0.043 | H2O | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | NA | NA | NA | 0.0001 | 0.0002 | NA |
| CH2154863 | 1,3-Butadiene | 106-99-0 | 0.30 | 54.09 | 61.259 | 0.281 | VOC | No | | 4.4 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.03 | 0.13 | 0.0016 | 0.0039 | YES |
| CH2154863 | 3-Methyl-1-Butene (Isopentene) | 563-45-1 | 0.40 | 70.13 | 26.648 | 0.126 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0009 | 0.0023 | YES |
| CH2154863 | Cis-1,3-Pentadiene (Cis-piperylene) | 1574-41-0 | 0.6 | 68.12 | 11.879 | 0.087 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0006 | 0.0015 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | 100.0 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Kerosene with Acrylic Acid and Polymer

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH2186951** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH2186951 | 2-Propenoic Acid (Acrylic Acid) | 79-10-7 | 3.00 | 72.1 | 0.172 | 0.008 | VOC | No | | 5.9 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.04 | 0.18 | 0.0022 | 0.0052 | YES |
| CH2186951 | Ethylene, Polymer with 2-Propenoic Acid | 9010-77-9 | 5.00 | 300.35 | 0.006 | 0.000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0001 | 0.0003 | YES |
| CH2186951 | Ethylbenzene | 100-41-4 | 1.00 | 106.17 | 0.3869 | 0.004 | VOC | No | | 434 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0016 | 0.0039 | YES |
| CH2186951 | Kerosene | 8008-20-6 | 100.00 | 130 | 0.022 | 0.020 | VOC | No | 100 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.69 | 3.02 | 0.0092 | 0.0221 | YES |
| CH2186951 | Naphthalene | 91-20-3 | 1.00 | 128.17 | 0.005 | 0.000 | VOC | No | | 52 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.36 | 1.57 | 0.0000 | 0.0000 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | 110.0 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | | |
|---|---|---|
| Maximum individual container volume (gal) = | | 7000 |
| Maximum containers per hour (z) = | | 1 |
| Maximum process volume (kgal/hr) = | | 7 |
| Maximum containers per year (z) = | | 4800 |
| Maximum process volume (kgal/yr) = | | 33600 |
| [kgal = 1000 gal] | | |
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Triethylaluminum

| Stream ID | Constituent(s) | CAS No. | Liquid wt% | [Mw] Molecular Weight (lb/lb mole) | [Vp] Vapor Press at Temp. (psia) | [Pv] Part Press. at wt% & Temp. (psia) | Type VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | L-Value Table 262 Otherwise ACGIH ==> (mg/m3) | L-Value 1997 ACGIH TWA (mg/m3) | Control Method Required | Handling Limits Equiv. Volume per Hour (kgal/hr) | Handling Limits Equiv. Volume per Year (kgal/hr) | Handling Limits Equiv. Cont. Limit (cont/hr) | Handling Limits Equiv. Cont. Limit (cont/yr) | PBR Limit PBR Claimed | PBR Limit Limit Hourly (lb/hr) | PBR Limit Annual (TPY) | Actual Emis Total Hourly (lb/hr) | Actual Emis Total Annual (TPY) | Meets PBR Limits ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH2199298** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH2199298 | Aluminum Alkyls (Tributylaluminum and Triethylaluminum | -- | 19.5 | 198.19 | 0.00120 | 0.0001 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH2199298 | Benzene | 71-43-2 | 0.048 | 78.11 | 2.8786 | 0.0018 | VOC | No | 3 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.02 | 0.09 | 0.0000 | 0.0001 | YES |
| CH2199298 | Toluene | 108-88-3 | 80.5 | 92.14 | 1.0418 | 0.9358 | VOC | No | | 188 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 1.30 | 5.00 | 0.0163 | 0.0391 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | 100.0 | | | | | | | | | | | | | | | | | | |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emissions are generated from the empty container cleaning process. Therefore these compounds are not considered to be air comtaminants per TCEQ Guidance Memo (When shoulds a compound be considered an air contaminant) dated September 19, 1996.**

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

PERC Flush

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH2202433B** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH2202433B | Carbon Tetrachloride | 56-23-5 | 0.5 | 153.81 | 3.760 | 0.0181 | VOC | No | 12 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.08 | 0.36 | 0.0006 | 0.0015 | YES |
| CH2202433B | Diphenylmethane-4,4'-Diisocyanate (MDI) | 101-68-8 | 0.5 | 250.25 | 1.9E-07 | 0.0000 | VOC | No | | 0.051 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.00 | 0.00 | 0.0000 | 0.0000 | YES |
| CH2202433B | MDI Mixed Isomers | 26447-40-5 | 0.1 | 250.25 | 4.1E-07 | 0.0000 | VOC | No | | 0.051 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.00 | 0.00 | 0.0000 | 0.0000 | YES |
| CH2202433B | Tetrachloroethylene (Perc) | 127-18-4 | 100.0 | 165.82 | 0.704 | 0.6980 | VOC | No | 33.5 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.23 | 1.01 | 0.0262 | 0.0630 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | 101.1 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | | |
|---|---|---|
| Maximum individual container volume (gal) = | | 7000 |
| Maximum containers per hour (z) = | | 1 |
| Maximum process volume (kgal/hr) = | | 7 |
| Maximum containers per year (z) = | | 4800 |
| Maximum process volume (kgal/yr) = | | 33600 |
| [kgal = 1000 gal] | | |
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

TDI Residue in Toluene

| Stream ID | Constituent(s) | CAS No. | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Pressure at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH2217378B** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH2217378B | 2,4-Toluene Diisocyanate | 584-84-9 | 50 | 174.2 | 0.002 | 0.001 | VOC | No | No | 0.036 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.00 | 0.00 | 0.0000 | 0.0001 | YES |
| CH2217378B | 2,6-Toluene Diisocyanate | 91-08-7 | 15 | 174.2 | 0.005 | 0.000 | VOC | No | No | NA | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH2217378B | TDI Polymer | - | 50 | 522.6 | 0.002 | 0.000 | VOC | No | No | NA | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0001 | YES |
| CH2217378B | Toluene | 108-88-3 | 50 | 92.14 | 1.033 | 0.554 | VOC | No | No | 188 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 1.30 | 5.00 | 0.0139 | 0.0335 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | 165.0 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | | |
|---|---|---|
| Maximum individual container volume (gal) = | | 7000 |
| Maximum containers per hour (z) = | | 1 |
| Maximum process volume (kgal/hr) = | | 7 |
| Maximum containers per year (z) = | | 4800 |
| Maximum process volume (kgal/yr) = | | 33600 |
| [kgal = 1000 gal] | | |
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Strong Effluent- High BTU Liquids

| Stream ID | Constituent(s) | CAS No. | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH2252562B** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH2252562B | Aniline | 62-53-3 | 5.0 | 93.13 | 0.0237 | 0.0011 | VOC | No | | 7.6 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.05 | 0.23 | 0.0000 | 0.0001 | YES |
| CH2252562B | Benzene | 71-43-2 | 5.0 | 78.11 | 2.8786 | 0.1589 | VOC | No | 3 | 1.6 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.02 | 0.09 | 0.0038 | 0.0092 | YES |
| CH2252562B | Carbon Tetrachloride | 56-23-5 | 0.005 | 153.82 | 3.7510 | 0.0001 | VOC | No | 12 | 31 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.08 | 0.36 | 0.0000 | 0.0000 | YES |
| CH2252562B | Chlorobenzene | 108-90-7 | 85.0 | 112.56 | 0.4793 | 0.3122 | VOC | No | | 46 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.32 | 1.39 | 0.0109 | 0.0260 | YES |
| CH2252562B | Chloroform | 67-66-3 | 0.005 | 119.38 | 6.2837 | 0.0002 | VOC | No | 10 | 10 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.07 | 0.30 | 0.0000 | 0.0000 | YES |
| CH2252562B | Diaminodiphenyl Methane (DADP) | 101-77-9 | 45.0 | 198.3 | 0.0005 | 0.0001 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH2252562B | Dibutyl Phthalate | 84-74-2 | 5.0 | 278.3 | 2.70E-06 | 0.0000 | VOC | No | | 5 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.03 | 0.15 | 0.0000 | 0.0000 | YES |
| CH2252562B | Dichlorobenzene, o- | 95-50-1 | 0.05 | 147.0 | 0.0640 | 0.0000 | VOC | No | | 150 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 1.03 | 4.53 | 0.0000 | 0.0000 | YES |
| CH2252562B | Maleic Anhydride | 108-31-6 | 0.05 | 98.1 | 0.0006 | 0.0000 | VOC | No | | 1 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.01 | 0.03 | 0.0000 | 0.0000 | YES |
| CH2252562B | Nitrobenzene | 98-95-3 | 5.00 | 123.1 | 0.0120 | 0.0004 | VOC | No | | 5 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.03 | 0.15 | 0.0000 | 0.0000 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | 150.1 | | | | | | | | | | | | | | | | | | |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emissions are generated from the empty container cleaning process. Therefore these compounds are not considered to be air comtaminants per TCEQ Guidance Memo (When shoulds a compound be considered an air contaminant) dated September 19, 1996.**

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Trichlor Tank Heel Clearing

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH2299732** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| CH2299732 | 1,1,1,2-Tetrachloroethane | 630-20-6 | 18.0 | 167.85 | 0.465 | 0.0186 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0005 | 0.0011 | YES |
| CH2299732 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 18.0 | 167.85 | 0.285 | 0.0114 | VOC | No | | 6.9 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.05 | 0.21 | 0.0003 | 0.0007 | YES |
| CH2299732 | 1,1,2-Trichloroethane | 79-00-5 | 12.0 | 133.40 | 0.888 | 0.0298 | VOC | No | | 55 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.38 | 1.66 | 0.0006 | 0.0014 | YES |
| CH2299732 | Cis-1,2-Dichloroethylene | 540-59-0 | 5.5 | 96.94 | 8.272 | 0.1752 | VOC | No | | 793 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0025 | 0.0059 | YES |
| CH2299732 | Trans-1,2-Dichloroethylene | 540-59-0 | 5.5 | 96.94 | 10.24 | 0.2170 | VOC | No | | 793 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0030 | 0.0073 | YES |
| CH2299732 | Ethylene Dichloride | 107-06-2 | 17.0 | 98.95 | 2.684 | 0.1722 | VOC | No | | 40 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.28 | 1.21 | 0.0025 | 0.0059 | YES |
| CH2299732 | Perchloroethylene | 127-18-4 | 12.0 | 165.82 | 0.7041 | 0.0190 | VOC | No | 33.5 | 170 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.23 | 1.01 | 0.0005 | 0.0011 | YES |
| CH2299732 | Trichloroethylene | 79-01-6 | 24.0 | 131.39 | 2.448 | 0.1670 | VOC | No | 135 | 269 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.93 | 4.08 | 0.0032 | 0.0076 | YES |
| CH2299732 | Water | 7732-18-5 | 33.0 | 18.00 | 0.961 | 0.6579 | H2O | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | NA | NA | NA | 0.0017 | 0.0041 | NA |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | 145.0 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Polyester Resin in Organic Solvents

| Stream ID | Constituent(s) | CAS No. | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **Desmophen 7116** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| Desmophen 7116 | Butyl Acetate | 123-86-4 | 25.0 | 116.2 | 0.4890 | 0.3608 | VOC | No | | 713 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0148 | 0.0354 | YES |
| Desmophen 7116 | 1-Butanol | 71-36-3 | 3.0 | 74.1 | 0.2940 | 0.0408 | VOC | No | 76 | 152 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.52 | 2.29 | 0.0011 | 0.0026 | YES |
| Desmophen 7116 | Polyester Resin | - | 72.0 | 2000.0 | 0.0001 | 0.0000 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | 100.0 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

FB1 Bulk Fuel

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **FB1UN1993AIRB** | | | | | | | | | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | | | | | | |
| FB1UN1993AIRB | 1-Butanol | 71-36-3 | 10.0 | 74.1 | 0.315 | 0.018 | VOC | No | 76 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.52 | 2.29 | 0.0002 | 0.0005 | YES |
| FB1UN1993AIRB | Acetone | 67-64-1 | 10.0 | 58.1 | 7.510 | 0.556 | ES | No | 590 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0048 | 0.0115 | YES |
| FB1UN1993AIRB | Benzene | 71-43-2 | 10.0 | 78.11 | 2.879 | 0.158 | VOC | No | 3 | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.02 | 0.09 | 0.0018 | 0.0044 | YES |
| FB1UN1993AIRB | Chlorobenzene | 108-90-7 | 1.0 | 112.56 | 0.479 | 0.002 | VOC | No | | 46 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.32 | 1.39 | 0.0000 | 0.0001 | YES |
| FB1UN1993AIRB | Cyclohexanone | 108-94-1 | 10.0 | 98.15 | 0.152 | 0.007 | VOC | No | | 100 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.262 | 0.69 | 3.02 | 0.0001 | 0.0002 | YES |
| FB1UN1993AIRB | Diesel Fuel | 68476-34-6 | 100.0 | 130 | 0.022 | 0.007 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0001 | 0.0003 | YES |
| FB1UN1993AIRB | Ethyl Acetate | 141-78-6 | 10.0 | 88.11 | 3.324 | 0.162 | VOC | No | | 1440 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0021 | 0.0051 | YES |
| FB1UN1993AIRB | Ethylbenzene | 100-41-4 | 10.0 | 106.17 | 0.387 | 0.016 | VOC | No | | 434 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0002 | 0.0006 | YES |
| FB1UN1993AIRB | Ethyl Ether | 60-29-7 | 5.0 | 74.12 | 16.480 | 0.478 | VOC | No | | 1210 | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0052 | 0.0126 | YES |
| FB1UN1993AIRB | Fuel Oil | 68476-30-2 | 100.0 | 136 | 0.012 | 0.004 | VOC | No | | | C-SCRB + CAS | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0001 | 0.0002 | YES |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | 266.0 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

DNAPL from Groundwater Remediation

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **086066_124B** | | | | | | | | | | | None | 7 | 33600 | 1 | 4800 | | | | | | |
| 086066_124B | 1,1,2-TRICHLOROETHANE | 79-00-5 | 0.03 | 133.4 | 0.660 | 0.000 | VOC | No | | 55 | None | 7 | 33600 | 1 | 4800 | 106.262 | 0.38 | 1.66 | 0.0006 | 0.0014 | YES |
| 086066_124B | 1,1-DICHLOROETHANE | 75-34-3 | 0.02 | 98.96 | 7.276 | 0.000 | VOC | No | | 405 | None | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0034 | 0.0081 | YES |
| 086066_124B | 1,2-DICHLOROETHANE | 107-06-2 | 0.50 | 98.96 | 2.684 | 0.003 | VOC | No | | 40 | None | 7 | 33600 | 1 | 4800 | 106.262 | 0.28 | 1.21 | 0.0388 | 0.0930 | YES |
| 086066_124B | 1,2-DICHLOROETHENE | 540-59-0 | 0.02 | 96.95 | 6.256 | 0.000 | VOC | No | | 793 | None | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0029 | 0.0069 | YES |
| 086066_124B | 2-METHYLNAPHTHALENE | 91-57-6 | 1.80 | 142.201 | 0.003 | 0.000 | VOC | No | | | None | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0002 | 0.0004 | YES |
| 086066_124B | ACENAPHTHENE | 83-32-9 | 0.24 | 154.21 | 3E-05 | 0.000 | VOC | No | | | None | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 086066_124B | ACENAPHTHYLENE | 208-96-8 | 0.33 | 152.2 | 0.000 | 0.000 | VOC | No | | | None | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 086066_124B | ANTHRACENE | 120-12-7 | 0.31 | 178.23 | 0.000 | 0.000 | VOC | No | | | None | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| 086066_124B | ARSENIC | 7440-38-2 | 0.005 | 74.92 | 0.000 | 0.000 | IOC | No | | 0.01 | None | 7 | 33600 | 1 | 4800 | 106.262 | 0.00 | 0.00 | 0.0000 | 0.0000 | YES |
| 086066_124B | BENZENE | 71-43-2 | 0.06 | 78.11 | 2.879 | 0.000 | VOC | No | 3 | | None | 7 | 33600 | 1 | 4800 | 106.262 | 0.02 | 0.09 | 0.0051 | 0.0122 | YES |
| 086066_124B | WATER | 7732-18-5 | 96.692 | 18.01 | 0.961 | 0.957 | H2O | No | | | None | 7 | 33600 | 1 | 4800 | NA | NA | NA | 2.6833 | 6.4398 | NA |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | 100.0 | | | | | | | | | | | | | | | | | | |

## SUMMARY OF PERMIT BY RULE 106.261 AND/OR 106.262 APPLICABILITY FOR CHEMICALS / MIXTURES

**Maximum Process Rates**

| | |
|---|---|
| Maximum individual container volume (gal) = | 7000 |
| Maximum containers per hour (z) = | 1 |
| Maximum process volume (kgal/hr) = | 7 |
| Maximum containers per year (z) = | 4800 |
| Maximum process volume (kgal/yr) = | 33600 |
| [kgal = 1000 gal] | |

| | | |
|---|---|---|
| Nearest Receptor Distance (ft) | D = | 290 |
| 30 TAC 106.261 distance coefficient | K = | 145.1 |

kgal = 1000 gal

Crude Telone Tank Washwater

| | | | | [Mw] | [Vp] | [Pv] | Type | | L-Value | | | Handling Limits | | | | PBR Limit | | | Actual Emis | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stream ID | Constituent(s) | CAS No. | Liquid wt% | Molecular Weight (lb/lb mole) | Vapor Press at Temp. (psia) | Part Press. at wt% & Temp. (psia) | VOC or IOC or ES | Listed in 106.261 (a)(2) Yes / No | Table 262 Otherwise ACGIH ==> (mg/m3) | 1997 ACGIH TWA (mg/m3) | Control Method Required | Equiv. Volume per Hour (kgal/hr) | Equiv. Volume per Year (kgal/hr) | Equiv. Cont. Limit (cont/hr) | Equiv. Cont. Limit (cont/yr) | PBR Claimed | Limit Hourly (lb/hr) | Annual (TPY) | Total Hourly (lb/hr) | Total Annual (TPY) | Meets PBR Limits ? |
| **CH2247143** | | | | | | | | | | | None | 7 | 33600 | 1 | 4800 | | | | | | |
| CH2247143 | 1,2-Dichloropropane | 78-87-5 | 1.0 | 112.98 | 1.794 | 0.0029 | VOC | No | | 347 | None | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0514 | 0.1234 | YES |
| CH2247143 | 1,3-Dichloropropene | 542-75-6 | 1.0 | 110.97 | 0.870 | 0.0014 | VOC | No | | 4.5 | None | 7 | 33600 | 1 | 4800 | 106.262 | 0.03 | 0.14 | 0.0249 | 0.0598 | YES |
| CH2247143 | Benzene | 71-43-2 | 0.0001 | 78.11 | 2.879 | 0.0000 | VOC | No | 3 | | None | 7 | 33600 | 1 | 4800 | 106.262 | 0.02 | 0.09 | 0.0000 | 0.0000 | YES |
| CH2247143 | Vapor-Tech Carbonil ES* | -- | 0.0005 | 308.5 | 0.0203 | 0.0000 | VOC | No | | | None | 7 | 33600 | 1 | 4800 | 106.261 | 1.00 | 4.38 | 0.0000 | 0.0000 | YES |
| CH2247143 | Water | 7732-18-5 | 98.0 | 18.1 | 0.947 | 0.944 | H2O | No | | | None | 7 | 33600 | 1 | 4800 | NA | NA | NA | 2.6608 | 6.3858 | NA |
| | | | | | | | | | | | | | | | | | | | | | |
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| | | | 100.0 | | | | | | | | | | | | | | | | | | |

*** Vapor-Tech Carbonil ES is a commercial solution containing proprietary amine compounds in a water soluble non-ionic surfactant (Polyethylene glycol nonylphenyl ether CAS 9016-45-9) and is designed to encapsulate hydocarbon molecules to reduce emissions. The Carbonil ES solution is present at 5 ppm or less in the stream.**

# SUMMARY OF CHEMICAL MIXTURES AND REQUIRED ABATEMENT

## Summary of Chemical Mixtures and Required Abatement

| Stream ID | Control Method Required |
|---|---|
| 126656-000B (FDA Tails) | C-SCRB + CAS |
| 152500-000B (Spent Toluene) | C-SCRB + CAS |
| 153747-000B (Dowtherm Q with Plastic) | C-SCRB + CAS |
| 60001T (Heptane) | C-SCRB + CAS |
| CH121527B (ATM Mother Liquor Water) | C-SCRB + CAS |
| CH1915926 (TTC Ester Material Aqueous) | C-SCRB + CAS |
| CH1962422 (TTC Ester Process Material) | C-SCRB + CAS |
| CH2021230 (Water with Mixed Olefins) | C-SCRB + CAS |
| CH2029747 (Organic Aldehyde Production Materials) | C-SCRB + CAS |
| CH2128974B | C-SCRB + CAS |
| CH2154863 (Red Oil) | C-SCRB + CAS |
| CH2186951 (Kerosene with Acrylic Acid and Polymer) | C-SCRB + CAS |
| CH2199298 (Aluminum Alkyls in Solvent) | C-SCRB + CAS |
| CH2202433B (Perc Flush) | C-SCRB + CAS |
| CH2217378B (TDI Residue in Toluene) | C-SCRB + CAS |
| CH2252562B | C-SCRB + CAS |
| CH2299732 (Trichlor) | C-SCRB + CAS |
| CH286885B | C-SCRB + CAS |
| CH291905B (Alkylation Brine) | C-SCRB + CAS |
| CH552527B-DE (MEC Flush) | C-SCRB + CAS |
| CH69877B (Heavy Ends from EDC and VCM Production) | C-SCRB + CAS |
| Desmophen 7116 | C-SCRB + CAS |
| FB1UN1993AIRB | C-SCRB + CAS |
| 086066_124B (DNAPL) | NONE |
| CH2247143 (Crude Telone) | NONE |

# 3.0 EMISSION CALCULATIONS

Emissions from the container washing activities have been estimated based on the properties of the component chemicals in each of the mixtures that were last transported and the number of containers (or equivalent volume) to be cleaned. Emissions have been estimated using the calculation method below:

$$[(Mw * Pv * V) / (R * T)] * (1 - (e/100))$$

Where:

Mw = Molecular weight (lb / lb-moles)
Pv = Vapor partial pressure (psia)
V = Container Volume ($ft^3$/hr or $ft^3$/yr)
R = Gas Constant = 10.73 psia $ft^3$/lb-mole
T = Temperature = 560 $^oR$
e = Control efficiency

The container volume per hour value (V) in the above equation is based on a maximum unit container volume of 7,000 gallons per hour (7,000 gal / 7.48 $ft^3$/gal = 936 $ft^3$/hr). Empty containers that last transported certain chemical mixtures are vented to a vapor control system composed of multiple abatement devices that are employed either individually or in combination as needed depending on the mixture composition. The control efficiency (e) is dependent on the control device or combination of devices employed to control each mixture (99% or greater). Other containers are be washed uncontrolled (e = 0%) with vapors emitted at the wash rack (TWR-1).

## 3.1 Emission Calculations

Emission calculations are included in the following pages.

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 $^{o}$F 408.33 (ft$^{3}$/mol)

R = Gas Constant = 10.73 psia ft$^{3}$/lb-mole $^{o}$R

T = Temperature = 560 $^{o}$R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

FDA Tails

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **126656-000B** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.26 | | | | | | | | |
| 126656-000B | 1,4-Benzenediol (hydroquinone) * | 123-31-9 | 110.11 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.26 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 126656-000B | 10H-Phenothiazine * | 92-84-2 | 199.27 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.26 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 126656-000B | 2-Propenoic Acid (acrylic acid) | 79-10-7 | 72.06 | 0.0850 | 1 | 4800 | 0.0004 | 0.0010 | C-SCRB + CAS | 99.26 | 0.0070 | 0.0169 | 0.0004 | 0.0010 | 0.0070 | 0.0169 | 0.0074 | 0.0179 |
| 126656-000B | 2-Propenoic acid, 2-carboxyethyl ester * | 24615-84-7 | 144.13 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.26 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 126656-000B | 2-Propenoic acid, homopolymer | 9003-01-4 | 144.12 | 0.0147 | 1 | 4800 | 0.0001 | 0.0003 | C-SCRB + CAS | 99.26 | 0.0024 | 0.0058 | 0.0001 | 0.0003 | 0.0024 | 0.0058 | 0.0026 | 0.0062 |
| 126656-000B | Benzoic acid | 65-85-0 | 122.12 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.26 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 126656-000B | Calcium * | 7440-70-2 | 40.08 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 126656-000B | Chromium * | 7440-47-3 | 52 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 126656-000B | Copper * | 7440-50-8 | 63.55 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 126656-000B | Manganese * | 7439-96-5 | 54.94 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
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| | | | | | | | | | | | | | 0.001 | 0.001 | 0.009 | 0.023 | 0.010 | 0.024 |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emissio**

**September 19, 1996.**

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions
Eh = Container Deheeling Emissions
Ed = Container Degassing Emissions
Mw = Molecular weight (lb / lb-mole)
Pv = Partial pressure (psia)
TPv = Sum of partial pressures (psia)
Vd = Cont. vapor volume (gal) = 6997
Vh = Liquid heel volume (gal) = 3
Max container volume (gal) = 7000
Vm = Molar volume of gas at 100 °F 408.33 ($ft^3$/mol)
R = Gas Constant = 10.73 psia $ft^3$/lb-mole °R
T = Temperature = 560 °R
Z = No. of cont/hr or cont/yr
e = Control efficiency
Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100
C-SCRB = 99 %
None = 0 %

Prodigy Spent Toluene

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **152500-000B** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.93 | | | | | | | | |
| 152500-000B | Pentamethylcyclopentadienyl)(N-Propylcyclopentadienyl)zirconium dichloride* | 183541-62-0 | 404.53 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 152500-000B | Benzene | 71-43-2 | 78.11 | 0.0009 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.93 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 152500-000B | 1,1-Dimethylcyclohexane | 590-66-9 | 112.21 | 0.0002 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.93 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 152500-000B | 2,2,3,3-Tetramethylbutane | 594-82-1 | 114.23 | 0.0001 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.93 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 152500-000B | Bis(2-(Pentamethylphenylamido)ethyl)amine dibenzyl * | -- | 442 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.93 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 152500-000B | Ethylbenzene | 100-41-4 | 106.17 | 0.0001 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.93 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 152500-000B | Ethylcyclohexane | 1678-91-7 | 112.21 | 0.0001 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.93 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 152500-000B | Methane | 74-82-8 | 16.04 | 0.0173 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.93 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 |
| 152500-000B | p-Xylene | 106-42-3 | 106.16 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.93 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 152500-000B | Silane, dichlorodimethyl-,reaction products with silica * | 68611-44-9 | 189.14 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.93 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 152500-000B | Trimethylaluminum | 75-24-1 | 72.09 | 0.0393 | 1 | 4800 | 0.0002 | 0.0005 | C-SCRB + CAS | 99.93 | 0.0003 | 0.0008 | 0.0002 | 0.0005 | 0.0003 | 0.0008 | 0.0005 | 0.0012 |
| 152500-000B | Toluene | 108-88-3 | 92.14 | 0.9422 | 1 | 4800 | 0.0058 | 0.0139 | C-SCRB + CAS | 99.93 | 0.0099 | 0.0239 | 0.0058 | 0.0139 | 0.0099 | 0.0239 | 0.0157 | 0.0378 |
| | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | 0.006 | 0.014 | 0.010 | 0.025 | 0.016 | 0.039 |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emissi**

**September 19, 1996.**

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions
Eh = Container Deheeling Emissions
Ed = Container Degassing Emissions
Mw = Molecular weight (lb / lb-mole)
Pv = Partial pressure (psia)
TPv = Sum of partial pressures (psia)
Vd = Cont. vapor volume (gal) = 6997
Vh = Liquid heel volume (gal) = 3
Max container volume (gal) = 7000
Vm = Molar volume of gas at 100 °F 408.33 ($ft^3$/mol)
R = Gas Constant = 10.73 psia $ft^3$/lb-mole °R
T = Temperature = 560 °R
Z = No. of cont/hr or cont/yr
e = Control efficiency
Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100
C-SCRB = 99 %
None = 0 %

Dowtherm Q with plastic

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **153747-000B** | | | | | 1 | 4800 | | | C-SCRB + CAS | 65.86 | | | | | | | | |
| 153747-000B | Benzene, Ethylenated,By Product From | 68608-82-2 | 182.26 | 0.0022 | 1 | 4800 | 0.0000 | 0.0001 | C-SCRB + CAS | 65.86 | 0.0209 | 0.0501 | 0.0000 | 0.0001 | 0.0209 | 0.0501 | 0.0209 | 0.0502 |
| 153747-000B | Polyethylene | 9002-88-4 | 28.031 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 65.86 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
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| | | | | | | | | | | | | | 0.000 | 0.000 | 0.021 | 0.050 | 0.021 | 0.050 |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emis**
**September 19, 1996.**

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 $^{o}$F 408.33 ($ft^3$/mol)

R = Gas Constant = 10.73 psia $ft^3$/lb-mole $^{o}$R

T = Temperature = 560 $^{o}$R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

Heptane

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **60001T** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.57 | | | | | | | | |
| 60001T | Heptane | 142-82-5 | 100.205 | 0.1722 | 1 | 4800 | 0.0012 | 0.0028 | C-SCRB + CAS | 99.57 | 0.0115 | 0.0275 | 0.0012 | 0.0028 | 0.0115 | 0.0275 | 0.0126 | 0.0303 |
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| | | | | | | | | | | | | | 0.001 | 0.003 | 0.011 | 0.028 | 0.013 | 0.030 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 °F 408.33 ($ft^3$/mol)

R = Gas Constant = 10.73 psia $ft^3$/lb-mole °R

T = Temperature = 560 °R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

Heavy Ends from EDC and VCM Production

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH69877B** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.96 | | | | | | | | |
| CH69877B | 1,1,1-TRICHLOROETHANE | 71-55-6 | 133.4 | 0.0112 | 1 | 4800 | 0.0001 | 0.0002 | C-SCRB + CAS | 99.96 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0005 |
| CH69877B | 1,1,2,2-TETRACHLOROETHANE | 79-34-5 | 167.848 | 0.0061 | 1 | 4800 | 0.0001 | 0.0002 | C-SCRB + CAS | 99.96 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | 0.0003 |
| CH69877B | 1,1,2-TRICHLOROETHANE | 79-00-5 | 133.41 | 0.2078 | 1 | 4800 | 0.0019 | 0.0044 | C-SCRB + CAS | 99.96 | 0.0019 | 0.0046 | 0.0019 | 0.0044 | 0.0019 | 0.0046 | 0.0038 | 0.0090 |
| CH69877B | 1-BROMO-2-CHLOROETHANE | 107-04-0 | 143.42 | 0.0009 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.96 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH69877B | BENZENE | 71-43-2 | 78.11 | 0.0099 | 1 | 4800 | 0.0001 | 0.0001 | C-SCRB + CAS | 99.96 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0003 |
| CH69877B | CHLOROBENZENE | 108-90-7 | 112.56 | 0.0153 | 1 | 4800 | 0.0001 | 0.0003 | C-SCRB + CAS | 99.96 | 0.0001 | 0.0003 | 0.0001 | 0.0003 | 0.0001 | 0.0003 | 0.0002 | 0.0006 |
| CH69877B | ETHYLENE DICHLORIDE | 107-06-2 | 98.96 | 1.3184 | 1 | 4800 | 0.0087 | 0.0209 | C-SCRB + CAS | 99.96 | 0.0090 | 0.0216 | 0.0087 | 0.0209 | 0.0090 | 0.0216 | 0.0177 | 0.0425 |
| CH69877B | PENTACHLOROETHANE | 76-01-7 | 202.3 | 0.0076 | 1 | 4800 | 0.0001 | 0.0002 | C-SCRB + CAS | 99.96 | 0.0001 | 0.0003 | 0.0001 | 0.0002 | 0.0001 | 0.0003 | 0.0002 | 0.0005 |
| CH69877B | TETRACHLOROETHYLENE | 127-18-4 | 165.83 | 0.0795 | 1 | 4800 | 0.0009 | 0.0021 | C-SCRB + CAS | 99.96 | 0.0009 | 0.0022 | 0.0009 | 0.0021 | 0.0009 | 0.0022 | 0.0018 | 0.0043 |
| CH69877B | TRICHLOROETHYLENE | 79-01-6 | 131.39 | 0.0045 | 1 | 4800 | 0.0000 | 0.0001 | C-SCRB + CAS | 99.96 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0002 |
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| | | | | | | | | | | | | | 0.012 | 0.029 | 0.012 | 0.030 | 0.024 | 0.058 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 $^{o}$F 408.33 ($ft^3$/mol)

R = Gas Constant = 10.73 psia $ft^3$/lb-mole $^{o}$R

T = Temperature = 560 $^{o}$R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

ATM Mother Liquor Water with Ammonium Sulfide and Caustic

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH121527B** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.93 | | | | | | | | |
| CH121527B | Ammonium Hydroxide | 1336-21-6 | 35.04 | 0.0097 | 1 | 4800 | 0.0000 | 0.0001 | C-SCRB + CAS | 99.93 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0001 |
| CH121527B | Ammonium Sulfide | 12135-76-1 | 68.15 | 0.1947 | 1 | 4800 | 0.0009 | 0.0021 | C-SCRB + CAS | 99.93 | 0.0014 | 0.0034 | 0.0009 | 0.0021 | 0.0014 | 0.0034 | 0.0023 | 0.0055 |
| CH121527B | Molybdenum * | 7439-98-7 | 95.94 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH121527B | Polysulfides (as sodium polysulfide) | 1344-08-7 | 57.07 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.93 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH121527B | Sodium Hydroxide * | 1310-73-2 | 39.997 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.93 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH121527B | Water | 7732-18-5 | 18.1 | 0.8663 | 1 | 4800 | 0.0010 | 0.0025 | C-SCRB + CAS | 99.93 | 0.0017 | 0.0040 | 0.0010 | 0.0025 | 0.0017 | 0.0040 | 0.0027 | 0.0065 |
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| | | | | | | | | | | | | | 0.002 | 0.005 | 0.003 | 0.008 | 0.005 | 0.012 |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emissio**

**September 19, 1996.**

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions
Eh = Container Deheeling Emissions
Ed = Container Degassing Emissions
Mw = Molecular weight (lb / lb-mole)
Pv = Partial pressure (psia)
TPv = Sum of partial pressures (psia)
Vd = Cont. vapor volume (gal) = 6997
Vh = Liquid heel volume (gal) = 3
Max container volume (gal) = 7000
Vm = Molar volume of gas at 100 °F 408.33 ($ft^3$/mol)
R = Gas Constant = 10.73 psia $ft^3$/lb-mole °R
T = Temperature = 560 °R
Z = No. of cont/hr or cont/yr
e = Control efficiency
Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100
C-SCRB = 99 %
None = 0 %

Oligomers

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH286885B** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.89 | | | | | | | | |
| CH286885B | Aliphatic Hydrocarbons (as Octane) | 111-65-9 | 114.2 | 0.0524 | 1 | 4800 | 0.0004 | 0.0010 | C-SCRB + CAS | 99.89 | 0.0010 | 0.0025 | 0.0004 | 0.0010 | 0.0010 | 0.0025 | 0.0014 | 0.0035 |
| CH286885B | Olefinic Hydrocarbons (Octene) | 111-66-0 | 112.22 | 0.6013 | 1 | 4800 | 0.0045 | 0.0108 | C-SCRB + CAS | 99.89 | 0.0118 | 0.0284 | 0.0045 | 0.0108 | 0.0118 | 0.0284 | 0.0163 | 0.0392 |
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| | | | | | | | | | | | | | 0.005 | 0.012 | 0.013 | 0.031 | 0.018 | 0.043 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 $^{o}$F 408.33 (ft$^3$/mol)

R = Gas Constant = 10.73 psia ft$^3$/lb-mole $^{o}$R

T = Temperature = 560 $^{o}$R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

Alkylation Brine

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH291905B** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.92 | | | | | | | | |
| CH291905B | 1,2,3,4-Tetrahydro-5-(1-phenylethyl)-naphthalene * | 60466-61-7 | 236.4 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.92 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH291905B | 1,2,3,4-Tetrahydronaphthalene (Tetralin) | 119-64-2 | 132.21 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.92 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH291905B | Sodium Sulfate * | 7757-82-6 | 142.04 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.92 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH291905B | Tetralin Sulfate (sulfuric acid tetralin alkylation sulfate salts) * | -- | 326 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.92 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH291905B | Water | 7732-18-5 | 18.1 | 0.9371 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
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| | | | | | | | | | | | | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 $^{o}$F 408.33 (ft$^{3}$/mol)

R = Gas Constant = 10.73 psia ft$^{3}$/lb-mole $^{o}$R

T = Temperature = 560 $^{o}$R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

MEC Flush

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH552527B-DE** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.99 | | | | | | | | |
| CH552527B-DE | Dichloromethane | 75-09-2 | 84.93 | 13.6146 | 1 | 4800 | 0.0772 | 0.1852 | C-SCRB + CAS | 99.99 | 0.0097 | 0.0233 | 0.0772 | 0.1852 | 0.0097 | 0.0233 | 0.0869 | 0.2086 |
| CH552527B-DE | Diphenylmethane-4,4'-Diisocyanate (MDI) | 101-68-8 | 250.25 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.99 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH552527B-DE | MDI Mixed Isomers | 26447-40-5 | 250.25 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.99 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
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| | | | | | | | | | | | | | 0.077 | 0.185 | 0.010 | 0.023 | 0.087 | 0.209 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 °F 408.33 ($ft^3$/mol)

R = Gas Constant = 10.73 psia $ft^3$/lb-mole °R

T = Temperature = 560 °R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

TTC Ester Process Aqueous Material Stream

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH1915926** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.93 | | | | | | | | |
| CH1915926 | Acetone | 67-64-1 | 58.08 | 0.3046 | 1 | 4800 | 0.0012 | 0.0028 | C-SCRB + CAS | 99.93 | 0.0019 | 0.0046 | 0.0012 | 0.0028 | 0.0019 | 0.0046 | 0.0031 | 0.0074 |
| CH1915926 | Chloretone (chlorobutanol) | 6001-64-5 | 186.46 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.93 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH1915926 | Chloroform | 67-66-3 | 119.38 | 0.0025 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.93 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 |
| CH1915926 | Heptane | 142-82-5 | 100.21 | 0.0075 | 1 | 4800 | 0.0001 | 0.0001 | C-SCRB + CAS | 99.93 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0003 |
| CH1915926 | Potassium Chloride * | 7440-49-7 | 74.55 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH1915926 | Potassium Hydroxide * | 1310-58-3 | 56.11 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH1915926 | Sodium Chloride * | 7440-23-5 | 58.44 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH1915926 | Sodium Hydroxide * | 1310-73-2 | 39.997 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH1915926 | Water | 7732-18-5 | 18.1 | 0.7503 | 1 | 4800 | 0.0009 | 0.0022 | C-SCRB + CAS | 99.93 | 0.0015 | 0.0035 | 0.0009 | 0.0022 | 0.0015 | 0.0035 | 0.0024 | 0.0057 |
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| | | | | | | | | | | | | | 0.002 | 0.005 | 0.003 | 0.008 | 0.006 | 0.014 |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emissio**
**September 19, 1996.**

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions
Eh = Container Deheeling Emissions
Ed = Container Degassing Emissions
Mw = Molecular weight (lb / lb-mole)
Pv = Partial pressure (psia)
TPv = Sum of partial pressures (psia)
Vd = Cont. vapor volume (gal) = 6997
Vh = Liquid heel volume (gal) = 3
Max container volume (gal) = 7000
Vm = Molar volume of gas at 100 °F 408.33 ($ft^3$/mol)
R = Gas Constant = 10.73 psia $ft^3$/lb-mole °R
T = Temperature = 560 °R
Z = No. of cont/hr or cont/yr
e = Control efficiency
Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100
C-SCRB = 99 %
None = 0 %

TTC Ester Process Material

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH1962422** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.98 | | | | | | | | |
| CH1962422 | Acetone | 67-64-1 | 58.08 | 2.2520 | 1 | 4800 | 0.0087 | 0.0210 | C-SCRB + CAS | 99.98 | 0.0050 | 0.0119 | 0.0087 | 0.0210 | 0.0050 | 0.0119 | 0.0137 | 0.0329 |
| CH1962422 | Butanol | 71-36-3 | 74.12 | 0.0230 | 1 | 4800 | 0.0001 | 0.0003 | C-SCRB + CAS | 99.98 | 0.0001 | 0.0002 | 0.0001 | 0.0003 | 0.0001 | 0.0002 | 0.0002 | 0.0004 |
| CH1962422 | Heptane | 142-82-5 | 100.21 | 0.2110 | 1 | 4800 | 0.0014 | 0.0034 | C-SCRB + CAS | 99.98 | 0.0008 | 0.0019 | 0.0014 | 0.0034 | 0.0008 | 0.0019 | 0.0022 | 0.0053 |
| CH1962422 | Hyrdochloric Acid | 7647-01-0 | 36.46 | 0.0631 | 1 | 4800 | 0.0002 | 0.0004 | C-SCRB + CAS | 99.98 | 0.0001 | 0.0002 | 0.0002 | 0.0004 | 0.0001 | 0.0002 | 0.0002 | 0.0006 |
| CH1962422 | Water | 7732-18-5 | 18.01 | 0.4647 | 1 | 4800 | 0.0006 | 0.0013 | C-SCRB + CAS | 99.98 | 0.0003 | 0.0008 | 0.0006 | 0.0013 | 0.0003 | 0.0008 | 0.0009 | 0.0021 |
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| | | | | | | | | | | | | | 0.011 | 0.026 | 0.006 | 0.015 | 0.017 | 0.041 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 °F 408.33 ($ft^3$/mol)

R = Gas Constant = 10.73 psia $ft^3$/lb-mole °R

T = Temperature = 560 °R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

Mixed Olefins with Aluminum Hydroxide and Water

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH2021230** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.92 | | | | | | | | |
| CH2021230 | Aluminum Hydroxide | 21645-51-2 | 78 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.92 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2021230 | Hexane | 110-54-3 | 86.18 | 0.1137 | 1 | 4800 | 0.0007 | 0.0016 | C-SCRB + CAS | 99.92 | 0.0013 | 0.0031 | 0.0007 | 0.0016 | 0.0013 | 0.0031 | 0.0020 | 0.0047 |
| CH2021230 | Mineral Oil | 8042-47-5 | 452.36 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.92 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2021230 | Octene | 111-66-0 | 112.21 | 0.3949 | 1 | 4800 | 0.0030 | 0.0071 | C-SCRB + CAS | 99.92 | 0.0059 | 0.0141 | 0.0030 | 0.0071 | 0.0059 | 0.0141 | 0.0088 | 0.0212 |
| CH2021230 | Poly-Alphaolefins (as 1-Decene, homopolymer) | 68037-01-4 | 750 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.92 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2021230 | Water | 7732-18-5 | 18.01 | 0.3576 | 1 | 4800 | 0.0004 | 0.0010 | C-SCRB + CAS | 99.92 | 0.0009 | 0.0020 | 0.0004 | 0.0010 | 0.0009 | 0.0020 | 0.0013 | 0.0031 |
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| | | | | | | | | | | | | | 0.004 | 0.010 | 0.008 | 0.019 | 0.012 | 0.029 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 $^{o}$F 408.33 (ft$^{3}$/mol)

R = Gas Constant = 10.73 psia ft$^{3}$/lb-mole $^{o}$R

T = Temperature = 560 $^{o}$R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

Lights and Bottoms from Organic Aldehyde Production

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH2029747** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.98 | | | | | | | | |
| CH2029747 | 2-Methyldecanal | 19009-56-4 | 170.292 | 0.0002 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.98 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2029747 | 2-Methylene Undecanal | 22414-68-2 | 182.31 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.98 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2029747 | 2-Methylundecanal | 110-41-8 | 184.32 | 0.0015 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.98 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 |
| CH2029747 | Methanol | 67-56-1 | 32.042 | 1.3584 | 1 | 4800 | 0.0029 | 0.0070 | C-SCRB + CAS | 99.98 | 0.0016 | 0.0039 | 0.0029 | 0.0070 | 0.0016 | 0.0039 | 0.0045 | 0.0108 |
| CH2029747 | Uncharacterized Aldehyde (as Acetaldehyde) | 75-07-0 | 44.05 | 1.2236 | 1 | 4800 | 0.0036 | 0.0086 | C-SCRB + CAS | 99.98 | 0.0020 | 0.0048 | 0.0036 | 0.0086 | 0.0020 | 0.0048 | 0.0056 | 0.0134 |
| CH2029747 | Water | 7732-18-5 | 18 | 0.5202 | 1 | 4800 | 0.0006 | 0.0015 | C-SCRB + CAS | 99.98 | 0.0003 | 0.0008 | 0.0006 | 0.0015 | 0.0003 | 0.0008 | 0.0010 | 0.0023 |
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| | | | | | | | | | | | | | 0.007 | 0.017 | 0.004 | 0.009 | 0.011 | 0.027 |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emissio**
**September 19, 1996.**

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 °F 408.33 ($ft^3$/mol)

R = Gas Constant = 10.73 psia $ft^3$/lb-mole °R

T = Temperature = 560 °R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

Bulk Fuels for fuel blending

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH2128974B** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.95 | | | | | | | | |
| CH2128974B | Benzene | 71-43-2 | 78.11 | 0.0028 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.95 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 |
| CH2128974B | Diesel | 68476-34-6 | 130 | 0.0020 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.95 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 |
| CH2128974B | Isooctyl Alcohol | 26952-21-6 | 130.22 | 0.0018 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.95 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 |
| CH2128974B | Isopropyl Alcohol | 67-63-0 | 60.1 | 0.2346 | 1 | 4800 | 0.0009 | 0.0023 | C-SCRB + CAS | 99.95 | 0.0010 | 0.0025 | 0.0009 | 0.0023 | 0.0010 | 0.0025 | 0.0020 | 0.0047 |
| CH2128974B | Methyl ethyl Ketone | 78-93-3 | 72.11 | 1.2980 | 1 | 4800 | 0.0062 | 0.0150 | C-SCRB + CAS | 99.95 | 0.0068 | 0.0163 | 0.0062 | 0.0150 | 0.0068 | 0.0163 | 0.0131 | 0.0313 |
| CH2128974B | Methyl Isobutyl Ketone | 108-10-1 | 100.16 | 0.0257 | 1 | 4800 | 0.0002 | 0.0004 | C-SCRB + CAS | 99.95 | 0.0002 | 0.0004 | 0.0002 | 0.0004 | 0.0002 | 0.0004 | 0.0004 | 0.0009 |
| CH2128974B | Severely Hydrotreated Base Oils (Base Oils) | 64742-55-8 | 360 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.95 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2128974B | Toluene | 108-88-3 | 92.14 | 0.0086 | 1 | 4800 | 0.0001 | 0.0001 | C-SCRB + CAS | 99.95 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0003 |
| CH2128974B | Xylene | 1330-20-7 | 106.16 | 0.0020 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.95 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 |
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| | | | | | | | | | | | | | 0.007 | 0.018 | 0.008 | 0.020 | 0.016 | 0.037 |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emis**
**September 19, 1996.**

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 °F 408.33 ($ft^3$/mol)

R = Gas Constant = 10.73 psia $ft^3$/lb-mole °R

T = Temperature = 560 °R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

Red Oil with Benzene

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH2154863** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.97 | | | | | | | | |
| CH2154863 | Cyclopentadiene | 542-92-7 | 66.1 | 0.1990 | 1 | 4800 | 0.0009 | 0.0021 | C-SCRB + CAS | 99.97 | 0.0005 | 0.0013 | 0.0009 | 0.0021 | 0.0005 | 0.0013 | 0.0014 | 0.0034 |
| CH2154863 | Cyclopentene | 142-29-0 | 68.11 | 0.2752 | 1 | 4800 | 0.0013 | 0.0030 | C-SCRB + CAS | 99.97 | 0.0008 | 0.0018 | 0.0013 | 0.0030 | 0.0008 | 0.0018 | 0.0020 | 0.0048 |
| CH2154863 | Benzene | 71-43-2 | 78.11 | 1.6275 | 1 | 4800 | 0.0085 | 0.0204 | C-SCRB + CAS | 99.97 | 0.0051 | 0.0123 | 0.0085 | 0.0204 | 0.0051 | 0.0123 | 0.0136 | 0.0327 |
| CH2154863 | Toluene | 108-88-3 | 92.14 | 0.1499 | 1 | 4800 | 0.0009 | 0.0022 | C-SCRB + CAS | 99.97 | 0.0006 | 0.0013 | 0.0009 | 0.0022 | 0.0006 | 0.0013 | 0.0015 | 0.0036 |
| CH2154863 | Styrene | 100-42-5 | 104.15 | 0.0204 | 1 | 4800 | 0.0001 | 0.0003 | C-SCRB + CAS | 99.97 | 0.0001 | 0.0002 | 0.0001 | 0.0003 | 0.0001 | 0.0002 | 0.0002 | 0.0005 |
| CH2154863 | Xylene | 1330-20-7 | 106.16 | 0.0103 | 1 | 4800 | 0.0001 | 0.0002 | C-SCRB + CAS | 99.97 | 0.0000 | 0.0001 | 0.0001 | 0.0002 | 0.0000 | 0.0001 | 0.0001 | 0.0003 |
| CH2154863 | Ethylbenzene | 100-41-4 | 106.17 | 0.0148 | 1 | 4800 | 0.0001 | 0.0003 | C-SCRB + CAS | 99.97 | 0.0001 | 0.0002 | 0.0001 | 0.0003 | 0.0001 | 0.0002 | 0.0002 | 0.0004 |
| CH2154863 | Fuel Oil | 68476-30-2 | 136 | 0.0002 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.97 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2154863 | Dicyclopentadiene | 77-73-9 | 132.2 | 0.0017 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.97 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 |
| CH2154863 | Water | 7732-18-5 | 18.1 | 0.0433 | 1 | 4800 | 0.0001 | 0.0001 | C-SCRB + CAS | 99.97 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0002 |
| CH2154863 | 1,3-Butadiene | 106-99-0 | 54.09 | 0.2815 | 1 | 4800 | 0.0010 | 0.0024 | C-SCRB + CAS | 99.97 | 0.0006 | 0.0015 | 0.0010 | 0.0024 | 0.0006 | 0.0015 | 0.0016 | 0.0039 |
| CH2154863 | 3-Methyl-1-Butene (Isopentene) | 563-45-1 | 70.13 | 0.1259 | 1 | 4800 | 0.0006 | 0.0014 | C-SCRB + CAS | 99.97 | 0.0004 | 0.0009 | 0.0006 | 0.0014 | 0.0004 | 0.0009 | 0.0009 | 0.0023 |
| CH2154863 | Cis-1,3-Pentadiene (Cis-piperylene) | 1574-41-0 | 68.12 | 0.0867 | 1 | 4800 | 0.0004 | 0.0009 | C-SCRB + CAS | 99.97 | 0.0002 | 0.0006 | 0.0004 | 0.0009 | 0.0002 | 0.0006 | 0.0006 | 0.0015 |
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| | | | | | | | | | | | | | 0.014 | 0.033 | 0.008 | 0.020 | 0.022 | 0.054 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 $^{o}$F 408.33 ($ft^3$/mol)

R = Gas Constant = 10.73 psia $ft^3$/lb-mole $^{o}$R

T = Temperature = 560 $^{o}$R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

Kerosene with Acrylic Acid and Polymer

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH2186951** | | | | | 1 | 4800 | | | C-SCRB + CAS | 97.77 | | | | | | | | |
| CH2186951 | 2-Propenoic Acid (Acrylic Acid) | 79-10-7 | 72.06 | 0.0085 | 1 | 4800 | 0.0000 | 0.0001 | C-SCRB + CAS | 97.77 | 0.0021 | 0.0051 | 0.0000 | 0.0001 | 0.0021 | 0.0051 | 0.0022 | 0.0052 |
| CH2186951 | Ethylene, Polymer with 2-Propenoic Acid | 9010-77-9 | 300.35 | 0.0001 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 97.77 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0001 | 0.0003 | 0.0001 | 0.0003 |
| CH2186951 | Ethylbenzene | 100-41-4 | 106.17 | 0.0043 | 1 | 4800 | 0.0000 | 0.0001 | C-SCRB + CAS | 97.77 | 0.0016 | 0.0038 | 0.0000 | 0.0001 | 0.0016 | 0.0038 | 0.0016 | 0.0039 |
| CH2186951 | Kerosene | 8008-20-6 | 130 | 0.0200 | 1 | 4800 | 0.0002 | 0.0004 | C-SCRB + CAS | 97.77 | 0.0090 | 0.0217 | 0.0002 | 0.0004 | 0.0090 | 0.0217 | 0.0092 | 0.0221 |
| CH2186951 | Naphthalene | 91-20-3 | 128.17 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 97.77 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
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| | | | | | | | | | | | | | 0.000 | 0.001 | 0.013 | 0.031 | 0.013 | 0.032 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions
Eh = Container Deheeling Emissions
Ed = Container Degassing Emissions
Mw = Molecular weight (lb / lb-mole)
Pv = Partial pressure (psia)
TPv = Sum of partial pressures (psia)
Vd = Cont. vapor volume (gal) = 6997
Vh = Liquid heel volume (gal) = 3
Max container volume (gal) = 7000
Vm = Molar volume of gas at 100 °F 408.33 ($ft^3$/mol)
R = Gas Constant = 10.73 psia $ft^3$/lb-mole °R
T = Temperature = 560 °R
Z = No. of cont/hr or cont/yr
e = Control efficiency
Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100
C-SCRB = 99 %
None = 0 %

Triethylaluminum

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH2199298** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.92 | | | | | | | | |
| CH2199298 | Aluminum Alkyls (Tributylaluminum and Triethylaluminum | -- | 198.1928 | 0.0001 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.92 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2199298 | Benzene | 71-43-2 | 78.11 | 0.0018 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.92 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 |
| CH2199298 | Toluene | 108-88-3 | 92.14 | 0.9358 | 1 | 4800 | 0.0058 | 0.0138 | C-SCRB + CAS | 99.92 | 0.0105 | 0.0253 | 0.0058 | 0.0138 | 0.0105 | 0.0253 | 0.0163 | 0.0391 |
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| | | | | | | | | | | | | | 0.006 | 0.014 | 0.011 | 0.025 | 0.016 | 0.039 |

*** Vapor pressure is < 0.01 mmHg at 104 deg F a**
**Memo (When shoulds a compound be considere**

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 $^{o}$F 408.33 ($ft^3$/mol)

R = Gas Constant = 10.73 psia $ft^3$/lb-mole $^{o}$R

T = Temperature = 560 $^{o}$R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

PERC Flush

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH2202433B** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.90 | | | | | | | | |
| CH2202433B | Carbon Tetrachloride | 56-23-5 | 153.81 | 0.0181 | 1 | 4800 | 0.0002 | 0.0004 | C-SCRB + CAS | 99.90 | 0.0004 | 0.0011 | 0.0002 | 0.0004 | 0.0004 | 0.0011 | 0.0006 | 0.0015 |
| CH2202433B | Diphenylmethane-4,4'-Diisocyanate (MDI) | 101-68-8 | 250.25 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.90 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2202433B | MDI Mixed Isomers | 26447-40-5 | 250.25 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.90 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2202433B | Tetrachloroethylene (Perc) | 127-18-4 | 165.82 | 0.6980 | 1 | 4800 | 0.0077 | 0.0185 | C-SCRB + CAS | 99.90 | 0.0185 | 0.0444 | 0.0077 | 0.0185 | 0.0185 | 0.0444 | 0.0262 | 0.0630 |
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| | | | | | | | | | | | | | 0.008 | 0.019 | 0.019 | 0.046 | 0.027 | 0.064 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 $^{o}$F 408.33 ($ft^3$/mol)

R = Gas Constant = 10.73 psia $ft^3$/lb-mole $^{o}$R

T = Temperature = 560 $^{o}$R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

TDI Residue in Toluene

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH2217378B** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.87 | | | | | | | | |
| CH2217378B | 2,4-Toluene Diisocyanate | 584-84-9 | 174.2 | 0.0006 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.87 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 |
| CH2217378B | 2,6-Toluene Diisocyanate | 91-08-7 | 174.2 | 0.0004 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.87 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2217378B | TDI Polymer | - | 522.6 | 0.0002 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.87 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 |
| CH2217378B | Toluene | 108-88-3 | 92.14 | 0.5542 | 1 | 4800 | 0.0034 | 0.0082 | C-SCRB + CAS | 99.87 | 0.0105 | 0.0253 | 0.0034 | 0.0082 | 0.0105 | 0.0253 | 0.0139 | 0.0335 |
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| | | | | | | | | | | | | | 0.003 | 0.008 | 0.011 | 0.025 | 0.014 | 0.034 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions
Eh = Container Deheeling Emissions
Ed = Container Degassing Emissions
Mw = Molecular weight (lb / lb-mole)
Pv = Partial pressure (psia)
TPv = Sum of partial pressures (psia)
Vd = Cont. vapor volume (gal) = 6997
Vh = Liquid heel volume (gal) = 3
Max container volume (gal) = 7000
Vm = Molar volume of gas at 100 °F 408.33 ($ft^3$/mol)
R = Gas Constant = 10.73 psia $ft^3$/lb-mole °R
T = Temperature = 560 °R
Z = No. of cont/hr or cont/yr
e = Control efficiency
Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100
C-SCRB = 99 %
None = 0 %

Strong Effluent- High BTU Liquids

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH2252562B** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.84 | | | | | | | | |
| CH2252562B | Aniline | 62-53-3 | 93.13 | 0.0011 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.84 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 |
| CH2252562B | Benzene | 71-43-2 | 78.11 | 0.1589 | 1 | 4800 | 0.0008 | 0.0020 | C-SCRB + CAS | 99.84 | 0.0030 | 0.0072 | 0.0008 | 0.0020 | 0.0030 | 0.0072 | 0.0038 | 0.0092 |
| CH2252562B | Carbon Tetrachloride | 56-23-5 | 153.82 | 0.0001 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.84 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2252562B | Chlorobenzene | 108-90-7 | 112.56 | 0.3122 | 1 | 4800 | 0.0023 | 0.0056 | C-SCRB + CAS | 99.84 | 0.0085 | 0.0204 | 0.0023 | 0.0056 | 0.0085 | 0.0204 | 0.0109 | 0.0260 |
| CH2252562B | Chloroform | 67-66-3 | 119.38 | 0.0002 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.84 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2252562B | Diaminodiphenyl Methane (DADP) | 101-77-9 | 198.26 | 0.0001 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.84 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2252562B | Dibutyl Phthalate | 84-74-2 | 278.348 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.84 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2252562B | Dichlorobenzene, o- | 95-50-1 | 147 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.84 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2252562B | Maleic Anhydride | 108-31-6 | 98.06 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.84 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2252562B | Nitrobenzene | 98-95-3 | 123.11 | 0.0004 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.84 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
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| | | | | | | | | | | | | | 0.003 | 0.008 | 0.012 | 0.028 | 0.015 | 0.035 |

*** Vapor pressure is < 0.01 mmHg at 104 deg F and no particulate emis**
**September 19, 1996.**

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 °F 408.33 ($ft^3$/mol)

R = Gas Constant = 10.73 psia $ft^3$/lb-mole °R

T = Temperature = 560 °R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

Trichlor Tank Heel Clearing

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH2299732** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.95 | | | | | | | | |
| CH2299732 | 1,1,1,2-Tetrachloroethane | 630-20-6 | 167.85 | 0.0186 | 1 | 4800 | 0.0002 | 0.0005 | C-SCRB + CAS | 99.95 | 0.0002 | 0.0006 | 0.0002 | 0.0005 | 0.0002 | 0.0006 | 0.0005 | 0.0011 |
| CH2299732 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 167.848 | 0.0114 | 1 | 4800 | 0.0001 | 0.0003 | C-SCRB + CAS | 99.95 | 0.0001 | 0.0004 | 0.0001 | 0.0003 | 0.0001 | 0.0004 | 0.0003 | 0.0007 |
| CH2299732 | 1,1,2-Trichloroethane | 79-00-5 | 133.4 | 0.0298 | 1 | 4800 | 0.0003 | 0.0006 | C-SCRB + CAS | 99.95 | 0.0003 | 0.0007 | 0.0003 | 0.0006 | 0.0003 | 0.0007 | 0.0006 | 0.0014 |
| CH2299732 | Cis-1,2-Dichloroethylene | 540-59-0 | 96.94 | 0.1752 | 1 | 4800 | 0.0011 | 0.0027 | C-SCRB + CAS | 99.95 | 0.0013 | 0.0032 | 0.0011 | 0.0027 | 0.0013 | 0.0032 | 0.0025 | 0.0059 |
| CH2299732 | Trans-1,2-Dichloroethylene | 540-59-0 | 96.94 | 0.2170 | 1 | 4800 | 0.0014 | 0.0034 | C-SCRB + CAS | 99.95 | 0.0016 | 0.0039 | 0.0014 | 0.0034 | 0.0016 | 0.0039 | 0.0030 | 0.0073 |
| CH2299732 | Ethylene Dichloride | 107-06-2 | 98.95 | 0.1722 | 1 | 4800 | 0.0011 | 0.0027 | C-SCRB + CAS | 99.95 | 0.0013 | 0.0032 | 0.0011 | 0.0027 | 0.0013 | 0.0032 | 0.0025 | 0.0059 |
| CH2299732 | Perchloroethylene | 127-18-4 | 165.82 | 0.0190 | 1 | 4800 | 0.0002 | 0.0005 | C-SCRB + CAS | 99.95 | 0.0002 | 0.0006 | 0.0002 | 0.0005 | 0.0002 | 0.0006 | 0.0005 | 0.0011 |
| CH2299732 | Trichloroethylene | 79-01-6 | 131.39 | 0.1670 | 1 | 4800 | 0.0015 | 0.0035 | C-SCRB + CAS | 99.95 | 0.0017 | 0.0041 | 0.0015 | 0.0035 | 0.0017 | 0.0041 | 0.0032 | 0.0076 |
| CH2299732 | Water | 7732-18-5 | 18 | 0.6579 | 1 | 4800 | 0.0008 | 0.0019 | C-SCRB + CAS | 99.95 | 0.0009 | 0.0022 | 0.0008 | 0.0019 | 0.0009 | 0.0022 | 0.0017 | 0.0041 |
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| | | | | | | | | | | | | | 0.007 | 0.016 | 0.008 | 0.019 | 0.015 | 0.035 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 $^{o}$F 408.33 (ft$^{3}$/mol)

R = Gas Constant = 10.73 psia ft$^{3}$/lb-mole $^{o}$R

T = Temperature = 560 $^{o}$R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

Polyester Resin in Organic Solvents

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Desmophen 7116** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.82 | | | | | | | | |
| Desmophen 7116 | Butyl Acetate | 123-86-4 | 116.16 | 0.3608 | 1 | 4800 | 0.0028 | 0.0067 | C-SCRB + CAS | 99.82 | 0.0120 | 0.0287 | 0.0028 | 0.0067 | 0.0120 | 0.0287 | 0.0148 | 0.0354 |
| Desmophen 7116 | 1-Butanol | 71-36-3 | 74.12 | 0.0408 | 1 | 4800 | 0.0002 | 0.0005 | C-SCRB + CAS | 99.82 | 0.0009 | 0.0021 | 0.0002 | 0.0005 | 0.0009 | 0.0021 | 0.0011 | 0.0026 |
| Desmophen 7116 | Polyester Resin | - | 2000 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.82 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
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| | | | | | | | | | | | | | 0.003 | 0.007 | 0.013 | 0.031 | 0.016 | 0.038 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 $^{o}$F 408.33 (ft$^{3}$/mol)

R = Gas Constant = 10.73 psia ft$^{3}$/lb-mole $^{o}$R

T = Temperature = 560 $^{o}$R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

FB1 Bulk Fuel

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FB1UN1993AIRB** | | | | | 1 | 4800 | | | C-SCRB + CAS | 99.95 | | | | | | | | |
| FB1UN1993AIRB | 1-Butanol | 71-36-3 | 74.12 | 0.0183 | 1 | 4800 | 0.0001 | 0.0002 | C-SCRB + CAS | 99.95 | 0.0001 | 0.0003 | 0.0001 | 0.0002 | 0.0001 | 0.0003 | 0.0002 | 0.0005 |
| FB1UN1993AIRB | Acetone | 67-64-1 | 58.08 | 0.5560 | 1 | 4800 | 0.0022 | 0.0052 | C-SCRB + CAS | 99.95 | 0.0026 | 0.0063 | 0.0022 | 0.0052 | 0.0026 | 0.0063 | 0.0048 | 0.0115 |
| FB1UN1993AIRB | Benzene | 71-43-2 | 78.11 | 0.1585 | 1 | 4800 | 0.0008 | 0.0020 | C-SCRB + CAS | 99.95 | 0.0010 | 0.0024 | 0.0008 | 0.0020 | 0.0010 | 0.0024 | 0.0018 | 0.0044 |
| FB1UN1993AIRB | Chlorobenzene | 108-90-7 | 112.56 | 0.0018 | 1 | 4800 | 0.0000 | 0.0000 | C-SCRB + CAS | 99.95 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 |
| FB1UN1993AIRB | Cyclohexanone | 108-94-1 | 98.15 | 0.0067 | 1 | 4800 | 0.0000 | 0.0001 | C-SCRB + CAS | 99.95 | 0.0001 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 |
| FB1UN1993AIRB | Diesel Fuel | 68476-34-6 | 130 | 0.0073 | 1 | 4800 | 0.0001 | 0.0002 | C-SCRB + CAS | 99.95 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | 0.0003 |
| FB1UN1993AIRB | Ethyl Acetate | 141-78-6 | 88.11 | 0.1622 | 1 | 4800 | 0.0010 | 0.0023 | C-SCRB + CAS | 99.95 | 0.0012 | 0.0028 | 0.0010 | 0.0023 | 0.0012 | 0.0028 | 0.0021 | 0.0051 |
| FB1UN1993AIRB | Ethylbenzene | 100-41-4 | 106.17 | 0.0157 | 1 | 4800 | 0.0001 | 0.0003 | C-SCRB + CAS | 99.95 | 0.0001 | 0.0003 | 0.0001 | 0.0003 | 0.0001 | 0.0003 | 0.0002 | 0.0006 |
| FB1UN1993AIRB | Ethyl Ether | 60-29-7 | 74.12 | 0.4780 | 1 | 4800 | 0.0024 | 0.0057 | C-SCRB + CAS | 99.95 | 0.0029 | 0.0069 | 0.0024 | 0.0057 | 0.0029 | 0.0069 | 0.0052 | 0.0126 |
| FB1UN1993AIRB | Fuel Oil | 68476-30-2 | 136 | 0.0038 | 1 | 4800 | 0.0000 | 0.0001 | C-SCRB + CAS | 99.95 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0002 |
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| | | | | | | | | | | | | | 0.007 | 0.016 | 0.008 | 0.019 | 0.015 | 0.035 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

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Vm = Molar volume of gas at 100 $^{o}$F 408.33 ($ft^3$/mol)

R = Gas Constant = 10.73 psia $ft^3$/lb-mole $^{o}$R

T = Temperature = 560 $^{o}$R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

DNAPL from Groundwater Remediation

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **086066_124B** | | | | | 1 | 4800 | | | None | 0.00 | | | | | | | | |
| 086066_124B | 1,1,2-TRICHLOROETHANE | 79-00-5 | 133.41 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | None | 0.00 | 0.0006 | 0.0014 | 0.0006 | 0.0014 | 0.0000 | 0.0000 | 0.0006 | 0.0014 |
| 086066_124B | 1,1-DICHLOROETHANE | 75-34-3 | 98.96 | 0.0002 | 1 | 4800 | 0.0000 | 0.0000 | None | 0.00 | 0.0034 | 0.0081 | 0.0034 | 0.0081 | 0.0000 | 0.0000 | 0.0034 | 0.0081 |
| 086066_124B | 1,2-DICHLOROETHANE | 107-06-2 | 98.96 | 0.0025 | 1 | 4800 | 0.0000 | 0.0000 | None | 0.00 | 0.0387 | 0.0930 | 0.0388 | 0.0930 | 0.0000 | 0.0000 | 0.0388 | 0.0930 |
| 086066_124B | 1,2-DICHLOROETHENE | 540-59-0 | 96.95 | 0.0002 | 1 | 4800 | 0.0000 | 0.0000 | None | 0.00 | 0.0029 | 0.0069 | 0.0029 | 0.0069 | 0.0000 | 0.0000 | 0.0029 | 0.0069 |
| 086066_124B | 2-METHYLNAPHTHALENE | 91-57-6 | 142.201 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | None | 0.00 | 0.0002 | 0.0004 | 0.0002 | 0.0004 | 0.0000 | 0.0000 | 0.0002 | 0.0004 |
| 086066_124B | ACENAPHTHENE | 83-32-9 | 154.21 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | None | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 086066_124B | ACENAPHTHYLENE | 208-96-8 | 152.2 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | None | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 086066_124B | ANTHRACENE | 120-12-7 | 178.23 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | None | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 086066_124B | ARSENIC | 7440-38-2 | 74.92 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | None | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 086066_124B | BENZENE | 71-43-2 | 78.11 | 0.0004 | 1 | 4800 | 0.0000 | 0.0000 | None | 0.00 | 0.0051 | 0.0122 | 0.0051 | 0.0122 | 0.0000 | 0.0000 | 0.0051 | 0.0122 |
| 086066_124B | WATER | 7732-18-5 | 18.01 | 0.9566 | 1 | 4800 | 0.0011 | 0.0028 | None | 0.00 | 2.6821 | 6.4371 | 2.6833 | 6.4398 | 0.0000 | 0.0000 | 2.6833 | 6.4398 |
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| | | | | | | | | | | | | | 2.734 | 6.562 | 0.000 | 0.000 | 2.734 | 6.562 |

**Container Cleaning Emissions (Deheeling + Degassing)**

**Ec = Eh +Ed**

**Eh = [((Mw * (V/7.48) * Pv) / (R * T))] * Z**

**Ed = [((Mw * (V/7.48) * Pv) / (R * T))] * Z * (1 - (e/100))** **{Scrubber Control}**

**Ed = [((Mw * (V/7.48) * (Pv/TPv)) / Vm))] * Z * (Bt/1000000)** **{CAS Control}**

Ec = Container Cleaning Emissions

Eh = Container Deheeling Emissions

Ed = Container Degassing Emissions

Mw = Molecular weight (lb / lb-mole)

Pv = Partial pressure (psia)

TPv = Sum of partial pressures (psia)

Vd = Cont. vapor volume (gal) = 6997

Vh = Liquid heel volume (gal) = 3

Max container volume (gal) = 7000

Vm = Molar volume of gas at 100 $^{o}$F 408.33 (ft$^{3}$/mol)

R = Gas Constant = 10.73 psia ft$^{3}$/lb-mole $^{o}$R

T = Temperature = 560 $^{o}$R

Z = No. of cont/hr or cont/yr

e = Control efficiency

Bt = 50 ppmv (Breakthrough threshold limit for CAS control) [Control efficiency = (1-(vapor conc. out @ 50 ppm / vapor conc. Inlet)) x 100

C-SCRB = 99 %

None = 0 %

Crude Telone Tank Washwater

| Stream ID | Constituent(s) | CAS No. | [Mw] Molecular Weight (lb/lb mole) | [Pv] Part Press. (psia) | Handling Limits [Z] Cont. per Hour | Handling Limits [Z] Cont. per Year | [Eh] Deheel Emis. (lb/hr) | [Eh] Deheel Emis. (TPY) | Degas. Control Required | Control eff. (%) | [Ed] Degas. Emis. (lb/hr) | [Ed] Degas. Emis. (TPY) | TWR-1 Total Emis. (lb/hr) | TWR-1 Total Emis. (TPY) | TV-STK Total Emis. (lb/hr) | TV-STK Total Emis. (TPY) | [Ec] Total Clean Emis. (lb/hr) | [Ec] Total Clean Emis. (TPY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CH2247143** | | | | | 1 | 4800 | | | None | 0.00 | | | | | | | | |
| CH2247143 | 1,2-Dichloropropane | 78-87-5 | 112.98 | 0.0029 | 1 | 4800 | 0.0000 | 0.0001 | None | 0.00 | 0.0514 | 0.1234 | 0.0514 | 0.1234 | 0.0000 | 0.0000 | 0.0514 | 0.1234 |
| CH2247143 | 1,3-Dichloropropene | 542-75-6 | 110.97 | 0.0014 | 1 | 4800 | 0.0000 | 0.0000 | None | 0.00 | 0.0249 | 0.0598 | 0.0249 | 0.0598 | 0.0000 | 0.0000 | 0.0249 | 0.0598 |
| CH2247143 | Benzene | 71-43-2 | 78.11 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | None | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2247143 | Vapor-Tech Carbonil ES* | -- | 308.5 | 0.0000 | 1 | 4800 | 0.0000 | 0.0000 | None | 0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CH2247143 | Water | 7732-18-5 | 18.1 | 0.9439 | 1 | 4800 | 0.0011 | 0.0027 | None | 0.00 | 2.6596 | 6.3831 | 2.6608 | 6.3858 | 0.0000 | 0.0000 | 2.6608 | 6.3858 |
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| | | | | | | | | | | | | | 2.737 | 6.569 | 0.000 | 0.000 | 2.737 | 6.569 |

*** Vapor-Tech Carbonil ES is a commercial solution containing proprietary**
**ppm or less in the stream.**

# 4.0 FEDERAL APPLICABILITY

30 TAC §106.4(a)(6) requires review of Federal Regulations as applicable to this registration.

## 4.1 National Ambient Air Quality Standards (NAAQS)

These standards are not applicable. Emissions being authorized by this registration include VOC, ES, and IOC.

## 4.2 40 CFR Part 60, New Source Performance Standards (NSPS)

These standards are not applicable due to there being no sources in this project that are identified as an affected source category in 40 CFR 60.

## 4.3 40 CFR Part 63, Hazardous Air Pollutants Maximum Achievable Control Technology (MACT)

The project is not a major source nor a specified area source of emissions for any hazardous air pollutants; therefore, the provisions of 40 CFR 63 do not apply.

## 4.4 40 CFR Part 61, National Emissions Standards for Hazardous Air Pollutants (NESHAPs)

No NESHAPS apply to this facility since none of the chemicals identified in 40 CFR Part 61 Subpart A are emitted or handled in sufficient quantities to trigger NESHAPS.

# 5.0 PERMIT-BY-RULE APPLICABILITY

This document demonstrates authorization for tote cleaning of new materials under 30 TAC §106.261 and §106.262.

## 5.1 30 TAC §106.4 Evaluation – Requirements for Permitting by Rule

The general requirements for qualifying for a PBR are outlined in 30 TAC §106.4. To qualify for authorization under a PBR, air contaminant emissions cannot exceed the following thresholds for the site:

- 250 tons per year (tpy) of carbon monoxide (CO) and nitrogen oxides ($NO_X$);
- 25 tpy of volatile organic compounds (VOC);
- 25 tpy of sulfur dioxide ($SO_2$) or inhalable particulate matter ($PM_{10}$);
- 10 tpy of any single hazardous air pollutant (HAP); and
- 25 tpy of aggregate total HAPs.

**Compliance with the above-mentioned emission rate thresholds are demonstrated based on the annual throughput of each material designated in this project.**

## 5.2 30 TAC §106.261 Evaluation – Facilities (Emission Limitations)

PBR 30 TAC §106.261 applies to facilities, or physical or operational changes to a facility, that do not produce new or increased emissions greater than thresholds specified in the following conditions.

(a) Except as specified under subsection (b) of this section, facilities, or physical or operational changes to a facility, are permitted-by-rule provided that all of the following conditions of this section are satisfied.

(1) The facilities or changes shall be located at least 100 feet from any recreational area or residence or other structure not occupied or used solely by the owner or operator of the facilities or the owner of the property upon which the facilities are located.

**The tank container cleaning process area is located greater than one hundred (100) feet from any recreation area, school, residence, or other structure not occupied or solely used by the facility.**

(2) Total new or increased emissions, including fugitives, shall not exceed 6.0 pounds per hour (lb/hr) and ten tons per year of the following materials: acetylene, argon, butane, crude oil, refinery petroleum fractions (except for pyrolysis napthas and pyrolysis gasoline) containing less than ten volume percent benzene, carbon monoxide, cyclohexane,

cyclohexene, cyclopentane, ethyl acetate, ethanol, ethyl ether, fluorocarbons Numbers 11, 12, 13, 14, 21, 22, 23, 113, 114, 115, and 116, helium, isohexane, isopropyl alcohol, methyl acetylene, methyl chloroform, methyl cyclohexane, neon, nonane, oxides of nitrogen, propane, propyl alcohol, propylene, propyl ether, sulfur dioxide, alumina, calcium carbonate, calcium silicate, cellulose fiber, cement dust, emery dust, glycerin mist, gypsum, iron oxide dust, kaolin, limestone, magnesite, marble, pentaerythritol, plaster of paris, silicon, silicon carbide, starch, sucrose, zinc stearate, or zinc oxide.

**Project emissions of chemicals listed above (if any) are less than the 6.0 lb/hr and 10.0 TPY individual emission rate limits as shown in Section 2.0.**

(3) Total new or increased emissions, including fugitives, shall not exceed 1.0 lb/hr of any chemical having a limit value (L) greater than 200 milligrams per cubic meter ($mg/m^3$) as listed and referenced in Table 262 of §106.262 of this title (relating to Facilities (Emission and Distance Limitations)) or of any other chemical not listed or referenced in Table 262. Emissions of a chemical with a limit value of less than 200 $mg/m^3$ are not allowed under this section.

**Emissions of chemicals with a TLV greater than 200 $mg/m^3$ as listed and referenced in 30 TAC §106.262 Table 262 under 30 TAC §106.261(a)(3), if any, are identified in the PBR applicability tables in Section 2.1 of this document. Emissions of chemicals which do not have a TLV value listed or referenced in 30 TAC 1§06.262 under 30 TAC §106.261(a)(3), if any, are also identified in the PBR applicability tables in Section 2.1. As shown in the tables, the hourly emissions are less than the 1.0 lb/hr emission rate limit established in this paragraph.**

(4) For physical changes or modifications to existing facilities, there shall be no changes to or additions of any air pollution abatement equipment.

**This project does not involve any physical changes or modifications to existing facilities and no changes to or additions of any air pollution abatement equipment.**

(5) Visible emissions, except uncombined water, to the atmosphere from any point or fugitive source shall not exceed 5.0% opacity in any six-minute period.

**No visible emissions to the atmosphere are anticipated during the operation of this process and will not exceed five percent (5.0%) opacity in any six-minute period if any do occur.**

(6) For emission increases of five tons per year or greater, notification must be provided using Form PI-7 within ten days following the installation or modification of the facilities. The notification shall include a description of the project, calculations, data identifying specific chemical names, limit values, and a description of pollution control equipment, if any.

**Emissions generated by this process are less than five (5) tons per year, as demonstrated in the emission estimate calculations; therefore, registration of these chemicals is not required until March 31 of next year. Regardless, a PI-7-Cert Form was completed via e-Permits and a copy of the form is included in the TCEQ Forms section of this submittal package.**

(7) For emission increases of less than five tons per year, notification must be provided using either:

(A) Form PI-7 within ten days following the installation or modification of the facilities. The notification shall include a description of the project, calculations, data identifying specific chemical names, limit values, and a description of pollution control equipment, if any; or

(B) Form PI-7 by March 31 of the following year summarizing all uses of this permit-by-rule in the previous calendar year. This annual notification shall include a description of the project, calculations, data identifying specific chemical names, limit values, and a description of pollution control equipment, if any.

**N/A.**

(b) The following are not authorized under this section:

(1) Construction of a facility authorized in another section of this chapter or for which a standard permit is in effect; and

(2) Any change to any facility authorized under another section of this chapter or authorized under a standard permit.

**The referenced compound emissions are not authorized under another section of this chapter or under a standard permit.**

## 5.3 30 TAC §106.262 Evaluation- Facilities (Emission and Distance Limitations)

Facilities, or physical or operational changes to a facility, are permitted by rule under 30 TAC §106.262 provided the operational change meet the following conditions:

- The emission points associated with the change shall be located at least 100 feet from any off-plant receptor identified as a structure not occupied or used solely by the owner or operator of the facilities or the owner of the property upon which the facilities are located.

**The emission points in this registration are located greater than one hundred (100) feet from any off plant receptors.**

- The increased chemical emission must be less than five tons per year and less than calculated pounds per hour limit as provided in the rule. The rule equation is based on the regulatory limit value in milligrams per cubic meter (based on TLV) and the distance from the emission point to an off-site receptor.

  **Individual chemical emissions from the container cleaning operations addressed in this project are less than five (5) tons per year and the calculated chemical specific pound per hour limit as provided in 30 TAC §106.262 (E=L/K). Project emissions meet the specified emission limits as shown in Section 2.1 of this document.**

- Notification must be provided using Form PI-7 CERT within ten days following the facility modification. Notification shall include project description, calculations and data identifying specific chemical names involved in the change.

  **An electronic PI-7-CERT Form was completed via ePermits and a copy of this form is included in the TCEQ Forms section of this submittal package.**

- For physical changes or modifications to existing facilities, there shall be no changes or additions of air pollution abatement equipment.

  **This project does not involve any physical changes or modifications to existing facilities and no changes to or additions of any air pollution abatement equipment.**

- Visible emissions, except uncombined water, to the atmosphere from any point or fugitive source shall not exceed 5.0% opacity in any six-minute period.

  **No visible emissions to the atmosphere are anticipated during the operation of this process. Visible emissions, if any, will not exceed five percent (5.0%) opacity in any six-minute period if any do occur.**

# 6.0 FIGURES

The following maps are provided in this section.

## 6.1 Site Location Map

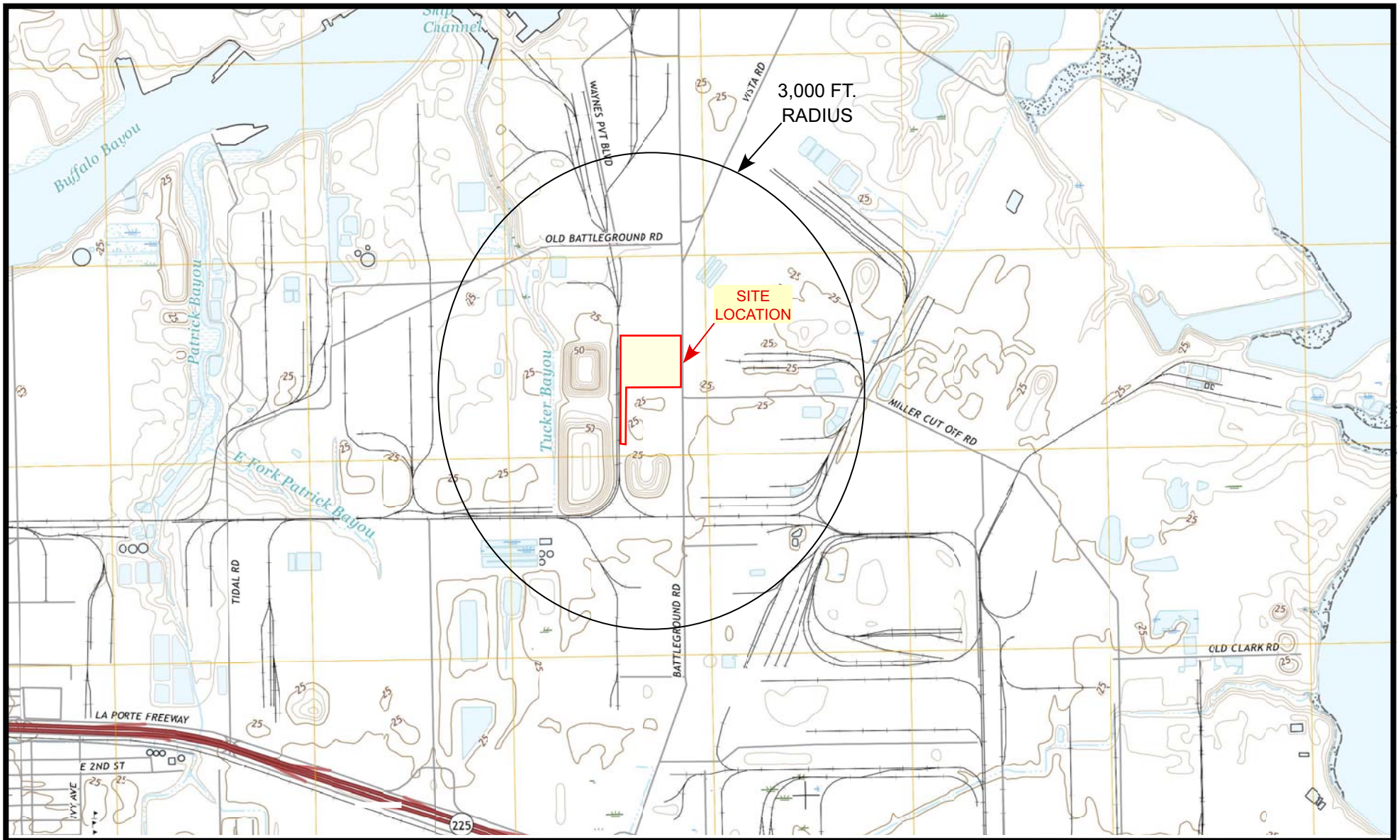
A site location map is provided as Figure 1 and identifies the location of this facility and the nature of surrounding land use.

## 6.2 Aerial Map

An aerial map is provided as Figure 2 which depicts the property boundary and surrounding structures.

## 6.3 Aerial Map Close Up

A close up aerial map is provided as Figure 2A that depicts the proposed facility layout and indicates the location of buildings, property lines, and distance to nearby off-property receptors.




ENVIRONMENTAL PROFESSIONALS

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**LEGEND**

Property Boundary

NOTES:

Reproduced from 7.5 Minute Topographic Quadrangle:
La Porte, Texas dated 2016

# SITE LOCATION MAP

**CLEAN HARBORS ENVIRONMENTAL SERVICES**
**2027 INDEPENDENCE PARKWAY S.**
**LA PORTE, TEXAS**

FIGURE
1

| | |
|---|---|
| DRAWN BY: | LLB |
| DATE: | 08/05/2021 |
| REV. DATE: | |
| DRAWING ID: | Y:\CHES\DP\Figures\TOPO LOCATION.cvx |

Approximate Scale in Feet
0 1,000 2,000

N


**LEGEND**

Property Boundary

NOTES:

Reproduced from Google Earth Pro dated 11/16/2020.

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# FACILITY SITE DIAGRAM

**CLEAN HARBORS ENVIRONMENTAL SERVICES**
**2027 INDEPENDENCE PARKWAY S.**
**LA PORTE, TEXAS**

FIGURE
2

| | |
|---|---|
| DRAWN BY: | LLB |
| DATE: | 08/05/2021 |
| REV. DATE: | |
| DRAWING ID: | Y:\CHES\DP\Figures\Site Diagram.cvx |

Approximate Scale in Feet
0 228 456

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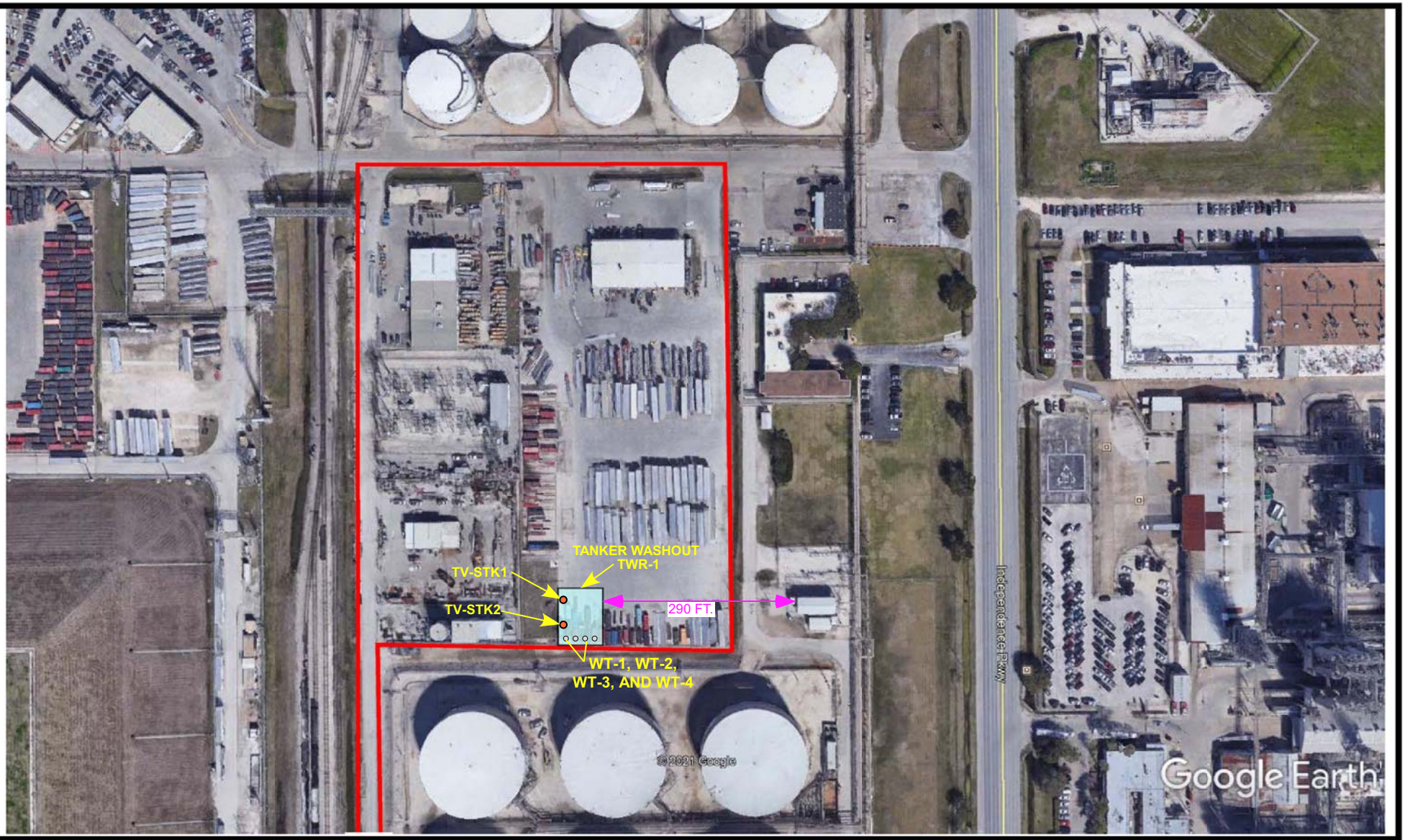


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**LEGEND**

Property Boundary

NOTES:

Reproduced from Google Earth Pro dated 11/16/2020.

# CLOSE UP - FACILITY SITE DIAGRAM

**CLEAN HARBORS ENVIRONMENTAL SERVICES**
**2027 INDEPENDENCE PARKWAY S.**
**LA PORTE, TEXAS**

FIGURE
2A

| | |
|---|---|
| DRAWN BY: | LLB |
| DATE: | 08/05/2021 |
| REV. DATE: | |
| DRAWING ID: | Y:\CHES\DP\Figures\Site Diagram-Closeup.cvx |

Approximate Scale in Feet
0 70 140

N