LANE REGIONAL AIR PROTECTION AGENCY
TITLE V OPERATING PERMIT
REVIEW REPORT

1010 Main Street
Springfield, OR 97477

Bakelite Chemicals LLC
2665 Highway 99 North
Eugene, Oregon 97402
Website: https://bakelite.com/

Permit No. 203129

Source Information:

Primary SIC	2821
Secondary SIC	--
Primary NAICS	325211
Secondary NAICS	--

Source Category (LRAPA Title 37, Table 1)	B.70: Synthetic resin manufacturing
Public Notice Category	III

Compliance and Emissions Monitoring Requirements:

Unassigned emissions	NA
Emission credits	NA
Compliance schedule	NA
Source test date(s)	See permit

COMS	NA
CEMS	NA
Ambient monitoring	NA

Reporting Requirements

Annual report (due date)	February 15
Semi-Annual Report (due date)	February 15
	August 15
Greenhouse Gas (due date)	March 31

Monthly report (due dates)	NA
Quarterly report (due dates)	NA
Excess emissions report	Immediately
Other reports	NA

Air Programs

NSPS (list subparts)	NA
NESHAP (list subparts)	A, W, H, OOO, SS, UU, EEEE, ZZZZ, DDDDD
CAM	NA
Regional Haze (RH)	NA
Synthetic Minor (SM)	NA
SM-80	NA
Part 68 Risk Management	Y
Title V	Y
Major FHAP source	Y

Federal major source	NA
New Source Review (NSR)	NA
Prevention of Significant Deterioration (PSD)	NA
Acid Rain	NA
Clean Air Mercury Rule (CAMR)	NA
TACT	NA
>20 Megawatt	NA
Cleaner Air Oregon (CAO)	NA

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LIST OF ABBREVIATIONS THAT MAY BE USED IN THIS REVIEW REPORT

ACDP	Air Contaminant Discharge Permit
Act	Federal Clean Air Act
APPU	Amino/phenolic resin process
AQMA	Air Quality Management Area
ASTM	American Society of Testing and Materials
BER	Baseline Emission Rate
BH	Baghouse
Btu	British thermal unit
CAM	Compliance Assurance Monitoring
CEMs	Continuous emission monitoring system
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CPMS	Continuous parameter monitoring system
DETA	Diethylenetriamine
DEQ	Department of Environmental Quality
DMG	Dimethyl Glutarate
dscf	Dry standard cubic feet
EF	Emission factor
EPA	US Environmental Protection Agency
ERC	Emission Reduction Credit
EU	Emissions Unit
F	Fahrenheit
FCAA	Federal Clean Air Act
GHG	Greenhouse Gas
gr/dscf	Grain per dry standard cubic foot (1 pound = 7,000 grains)
HAP	Hazardous Air Pollutant as defined by LRAPA title 12
ID	Identification number
I&M	Inspection and maintenance
IPA	Isopropyl Alcohol
kPa	kiloPascal
lb	Pound
LRAPA	Lane Regional Air Protection Agency
M	1,000
MM	1,000,000
MB	Material Balance
MSF	1,000 Square feet 3/8" basis
MSDS	Material Safety Data Sheets
NA	Not applicable
NCP	Notice of Civil Penalty
NO_X	Nitrogen oxides
NESHAP	National Emission Standard for Hazardous Air Pollutant
NON	Notice of Non-Compliance
NSPS	New Source Performance Standards
NSR	New Source Review
O_2	Oxygen
OAR	Oregon Administrative Rules
ORS	Oregon Revised Statutes
O&M	Operation and maintenance
Pa	Pascal
Pb	Lead
PCD	Pollution Control Device
PF	Phenol Formaldehyde
PM	Particulate matter
PM_{10}	Particulate matter less than 10 microns in size
$PM_{2.5}$	Particulate matter less than 2.5 microns in size
ppm	Parts per million
PSEL	Plant Site Emission Limit
psia	pounds per square inch, actual
RICE	Reciprocating Internal Combustion Engine
SI ICE	Spark Ignition Internal Combustion Engine
SIP	State Implementation Plan
SO_2	Sulfur dioxide
ST	Source test
TOC	Total Organic Compound
UF	Urea Formaldehyde
UFC	Urea Formaldehyde Concentrates
VE	Visible emissions
VHAP	Volatile Hazardous Air Pollutant
VMT	Vehicle miles traveled
VOC	Volatile organic compounds
VOL	Volatile organic liquids
WSR	Wet Strength Resin

INTRODUCTION

1. The proposed permit is a renewal of the Lane Regional Air Protection Agency (LRAPA) Title V Operating Permit No. 203129 that was issued June 13, 2017 and scheduled to expire on June 13, 2022. The existing permit will remain in effect until this renewal is issued.

    1.a. Information relied upon: The permit renewal is based upon the renewal application (No. 67233) received June 8, 2021.

2. In accordance with OAR 340-218-0120(1)(f), this review report is intended to provide the legal and factual basis for the draft permit conditions. In most cases, the legal basis for a permit condition is included in the permit by citing the applicable regulation. In addition, the factual basis for the requirement may be the same as the legal basis. However, when the regulation is not specific and only provides general requirements, this review report is used to provide a more thorough explanation of the factual basis for the draft permit conditions.

FACILITY DESCRIPTION

3. Bakelite Chemicals LLC ("Bakelite" or "the facility") manufactures four (4) different liquid resins; urea-formaldehyde (UF) resin, phenol-formaldehyde (PF) resin, wet strength resin (WSR), and RESI-MIX® Phenolic Impregnating resin. Formaldehyde is reacted with either phenol or urea in three resin batch reactors (K1, K2, and K3) to manufacture these four types of liquid resins. Additionally, other raw materials are added to the reactors to manufacture differing varieties of resins. The primary liquid raw materials are stored in on-site, above-ground storage tanks and are added to the reactors through the use of mass flow metering systems. The solid raw materials are added to the reactors through the use of automated pneumatic transfer or mechanical conveyor (urea, salt and melamine) systems, or by pulling the raw materials into the reactors which operate under vacuum. Other raw materials used in smaller quantities are stored in containers such as drums, tote tanks, "super-sacks", or paper or plastic bags.

4. The facility is located in an area that is generally flat. To the north of the facility there is a mixed industrial and commercial area, including a gasoline dispensing facility. To the east of the facility is a heavy industrial area, including a wood product manufacturing facility. To the south of the facility there is a mixed industrial and commercial area, along with Highway 99. To the west of the facility is a commercial area and Highway 99.

GENERAL BACKGROUND INFORMATION

5. Bakelite (formerly Georgia-Pacific Chemicals LLC) purchased this facility from Pacific Resins and Chemicals in November of 1981. While owned by Pacific Resins and Chemicals, the facility operated a formaldehyde plant, which ceased operation in 1980. Emissions from the formaldehyde plant were not banked and are not considered part of the facility's baseline emissions. Plant Site Emission Limit (PSEL) calculations reflect only activities currently performed at the facility.

    In September of 2002, the facility (Georgia-Pacific Resins, Inc. at the time) requested a determination from LRAPA regarding the major source status of the facility. At that time, the Georgia-Pacific Corporation Prairie Road Panelboard Plant, a Title V facility, was adjacent to and under common ownership with the Eugene facility. Since the combined potential-to-emit (PTE) of hazardous air pollutant (HAP) emissions from both facilities was greater than 10 tons of methanol per year, the Eugene complex (panelboard facility and chemical facility) was determined to be a major source for HAPs. The Prairie Road Panelboard Plant is currently owned and operated by Murphy Plywood (Permit Number 203102) and has been since (2005). Due to the change in ownership of the panelboard plant, all parties agreed that it would be more practical to have two (2) separate Title V permits – one (1) for each source. The facility was issued LRAPA Title V Operating Permit No. 203129 on August 18, 2004.

The current HAP PTE for the facility is less than the major source thresholds of 10 tons per year (tpy) for any single HAP and 25 tpy for any combination of HAPs; however, the facility has remained a Title V and NESHAP major source due to the U.S. EPA's longstanding "once in, always in" policy, first articulated in the agency's May 16, 1995 Memorandum titled "Potential to Emit for MACT Standards – Guidance on Timing Issues." EPA issued a guidance memo on January 25, 2018 reversing the "once in, always in" policy, and then published a final rule on the same topic (called the "MM2A" rule) in the Federal Resister on November 19, 2020, with an effective date of January 19, 2021. While the current HAP PTE for the facility is less than the major source thresholds (10 tpy for any single HAP and 25 tpy for any combination of HAPs) and the MM2A rule currently stands, the facility has elected to remain a Title V and NESHAP major source. The facility is also a listed source for PSD purposes as a chemical process plant.

6. The facility is located inside the Eugene Springfield Air Quality Management Area. The facility is located in an area that has been designated an attainment/unclassified area for $PM_{2.5}$, O_3, NO_X, SO_2 and Pb and a maintenance area for CO and PM_{10}. The facility is located within 100 kilometers of two (2) Class I air quality protection areas: Diamond Peak Wilderness and Three Sisters Wilderness.

7. The current permit was issued on June 13, 2017. The following changes have been made at the facility during the last permit term:

Date	Permit Revision or Notification	Explanation
07/24/2017	Addendum No. 1 (Minor Modification – Application No. 62727)	Amendment to address equipment changes associated with increased prepolymer production used to manufacture WSR.
08/17/2017	Addendum No. 2 (Administrative Amendment – Application No. 62727)	Amendment to correct a typographical error associated with Addendum No. 1 and to clarify the pollution control device operating scenario for EU: LOAD-1.
10/15/2021	Off-Permit Notification (MD 902, Application No. 67559)	Repair of six (6) PF resin tanks and one (1) PF resin loading rack.
04/07/2022	Addendum No. 3 (Administrative Amendment – Application No. 68358)	Amendment to change the name of the facility from "Georgie-Pacific Chemicals LLC" to "Bakelite Chemicals LLC."

EMISSIONS UNIT AND POLLUTION CONTROL DEVICE IDENTIFICATION

8. The emissions units at this facility are the following:

Emission Unit Description	EU ID	Pollution Control Device Description	PCD ID
Boiler – Cleaver Brooks 61.7 MMBtu/hr Water tube boiler constructed in 1972	B-1	None	NA
Resin Reactors (K-1, K-2, K-3)	OX-1	Regenerative Thermal Oxidizer	RTO
Transfer Rack(s): UFC and Methanol Distillate Loading	LOAD-1	Methanol Distillate Loading: Vapor Balance System	Vbal-3
		UFC Loading: None	NA
Cooling Tower	CT-1	None	NA
Process Piping and Component Leaks– Raw Material Handling	LDAR	None	NA

Emission Unit Description	EU ID	Pollution Control Device Description	PCD ID
Miscellaneous Emission Units			
Urea Transfer System	Urea	2 Baghouses (1 on Weigh Hopper, 1 on Storage Silo)	BH-1 BH-2
Resimixer	RESI-MIX®	Baghouse	BH-3
Dry Chemical Blower	Salt	Baghouse	BH-4 & BH-5
Dimethyl Glutarate (DMG) Storage Tank	301	None	NA
Polyamide Resin Tanks	Polyamide Resin Tanks	None	NA
Methanol Distillate Tanks 602 and 703	Methanol Distillate Tanks	None	NA
90% Formic Acid Storage Tank	305	None	NA
Acid Quench Storage Tank	AQ-1	None	NA
PF Resin Tanks	PF Resin Tanks	None	NA
UF Resin Tanks	UF Resin Tanks	None	NA
Phenol Storage Tanks 302, 303	Phenol Storage Tanks	None	NA
Formaldehyde Storage Tanks 304, 306	Formaldehyde Storage Tanks	None	NA
Diethylenetriamine (DETA) Storage Tank 701	DETA Storage Tank	None	NA
Prepolymer Storage Tank 298, 704, 705	Prepolymer Storage Tanks	None	NA
Isopropyl Alcohol Storage Tank 800	IPA Storage Tank	Vapor Balance System	Vbal-1
Epichlorohydrin Storage Tanks 801, 802	Epichlorohydrin Storage Tanks	Vapor Balance System	Vbal-2
Diesel Fuel Storage Tank	DF-1	None	NA
Precatalyst Storage Tank 309	Precatalyst Storage Tank	None	NA
Waste Resin Pile Emission	WRP	None	NA
Truck and Railcar Loading of Resin	LOAD-2	None	NA
Truck Washing Emission Estimates	TW-1	None	NA
Paved Roads	PR-1	None	NA
Aggregate Insignificant Emission Units			
• Thermal Oxidizer Supplement Burner (natural gas) • Cleaning and Degreasing Metal Parts	AI	None	NA
Categorically Insignificant Activities			
Emergency Generator: 749 hp, diesel-fired	EG-1	None	NA
• Ammonium Hydroxide Storage Tank 300 • Sulfuric Acid Storage Tank 601 • Caustic Storage Tank 702 • WSR Stormwater Storage Tank 900	CIA	None	NA

9. Boiler (EU: B-1): One (1) Cleaver Brooks water tube natural gas boiler with No. 2 fuel oil back-up is utilized for temperature control in the resin manufacturing process. The boiler is rated at 61.7 MMBtu/hour, operates uncontrolled, and was constructed in 1972.

10. Resin Reactors (EU: OX-1): Three resin reactors (K1, K2, and K3) are used in the manufacture of the four types of liquid resin at the facility. The K1 reactor uses steam and/or cooling coils to control the rate of reaction. K1 is vented directly to the RTO as it does not have a condenser or vacuum system. Reactors K2 and K3 use steam and/or cooling coils as well, but also have a reflux condenser with a vacuum pump system to condense and recover the heated vapors to control the reaction temperature. The resin manufacturing reaction is carried out under negative pressure with the use of a dual stage liquid ring vacuum pump and seal water system. The HAP/VOC emissions contained in the seal water are continuously stripped from the seal water tank (VS-1) and routed to the regenerative thermal oxidizer (RTO) for destruction.

11. Transfer Racks (EU: LOAD-1): The transfer racks in EU: LOAD-1 handle urea-formaldehyde concentrate (UFC) and methanol distillates. The vapor balancing system (Vbal-3) only controls the loading of methanol distillate, which includes off-loading into tanker trucks and railcars for shipment offsite.

12. Cooling Tower (EU: CT-1): The cooling tower is used for temperature control in the resin manufacturing process.

13. Process Piping and Component Leaks (EU: LDAR): The Leak Detection and Repair (LDAR) emission unit corresponds to the 40 CFR 63 subpart H and 40 CFR 63 subpart UU requirements detailed in the permit. 40 CFR 63 subpart H is associated with production of Wet Strength Resin (WSR) and the resulting epichlorohydrin emissions. 40 CFR subpart UU is associated with the process equipment involved in the production of amino/phenolic resins.

14. Miscellaneous Emission Units: These emission units support the resin manufacturing process and include above-ground storage tanks, dry material loading, resin loading (LOAD-2), truck washing (TW-1) and paved roads (PR-1) for receiving raw materials and delivering products.

AGGREGATE INSIGNIFICANT ACTIVITIES

15. Aggregate insignificant emissions from activities identified by the facility are detailed in the following table:

Emissions Source	Pollutants (tons/year)						
	PM	PM_{10}	$PM_{2.5}$	CO	NO_X	VOC	SO_2
Thermal Oxidizer Supplemental Burner (natural gas)	0.006	0.025	0.025	0.273	0.325	0.0179	0.002
Cleaning and Degreasing of Metal Parts	NA	NA	NA	NA	NA	0.54	NA
Totals	**0.006**	**0.025**	**0.025**	**0.28**	**0.33**	**0.72**	**0.002**

TITLE V PERMIT CHANGE LOG

16. The following is a list of condition-by-condition changes between the previous permit and the proposed permit:

New Permit Condition Number	Old Permit Condition Number	Description of change	Reason for change
Most	Most	Updated and corrected rule references; Replaced “shall” with “must” in most permit conditions	LRAPA rule changes, typos, etc.

New Permit Condition Number	Old Permit Condition Number	Description of change	Reason for change
Cover page	Cover page	Updated "Information Relied Upon"	Application for renewal No. 67233
List of Abbreviations	List of Abbreviations	Incorporated APPU, day, week, month and year definitions into list	Clarity and consistency
1	1	None	None
2	2	Updated condition numbers that are LRAPA only and/or DEQ only enforceable	Rules and conditions have changed
3	3	Removed asterisks and grouped "Miscellaneous Emission Units" under a common header; Included emergency generator (EG-1) and several storage tanks under the CIA header	Clarity and consistency
4	4	Updated rule citation; Added paved road airborne particulate matter precautions	2018 LRAPA rule revisions
5	5	Updated fugitive emission definition; Added LRAPA rule citation	2018 LRAPA rule revisions
6	5.c.	Extracted recordkeeping requirement from list in Condition 5 to isolate as separate condition to match permit template	Clarity and consistency
7	8	Minor language changes	Clarity and consistency
8	9	Extracted nuisance monitoring requirement from Condition 8; Added LRAPA rule citation	2018 LRAPA rule revisions; Clarity and consistency
9	--	Added applicable requirement to prevent damage or injury to persons or property	Title V permit includes all applicable requirements
10	8.a. & 9.a.	Extracted nuisance monitoring requirement from Condition 8; Extracted fallout monitoring requirement from Condition 9; Added LRAPA rule citation	2018 LRAPA rule revisions; Clarity and consistency
11	--	Added applicable requirement for air Pollution Alert, Warning, or Emergency Episodes	Title V permit includes all applicable requirements
12	--	Added monitoring requirement to include new permit Condition 11	Clarity and consistency
13	6	Updated rule citation	2018 LRAPA rule revisions
14	7	Minor language changes; Updated rule citation	2018 LRAPA rule revisions; Clarity and consistency
15	10	None	None
EU: LDAR Emissions Limit Table	Table 4: WSR MACT (EU: LDAR)	Added additional applicable requirements for 40 CFR 63 subpart H	Title V permit includes all applicable requirements; Clarity and consistency
16	13	None	None
--	14	Removed	Language deemed repetitive

New Permit Condition Number	Old Permit Condition Number	Description of change	Reason for change
17	--	Added recordkeeping requirements for Condition 18	Clarity and consistency
18	--	Added reporting requirements for Condition 18	Clarity and consistency
19-46	15	Expanded the condition and inserted all applicable 40 CFR 63 subpart H requirements	Title V permit includes all applicable requirements
EU: LOAD-1 Emissions Limit Table	Table 5: NESHAP subpart EEEE	Added additional applicable requirements for 40 CFR 63 subpart EEEE; Updated rule citations	Title V permit includes all applicable requirements; Clarity and consistency
47	16	Updated rule citation	Clarity and consistency
48	--	Added notification and recordkeeping requirements	Title V permit includes all applicable requirements
49	--	Added applicability requirements if subject to emission standards at a later date	Title V permit includes all applicable requirements
50	17	Minor language changes	Clarity and consistency
EU: OX-1 & CT-1 Emissions Limit Table	Table 6: NESHAP subpart OOO	Added additional applicable requirements for 40 CFR 63 subpart OOO, subpart SS and subpart UU; Updated rule citations	Title V permit includes all applicable requirements; Clarity and consistency
51	19	Minor language changes	Clarity and consistency
52-55	--	Inserted additional 40 CFR 63 subpart OOO requirements for combined emission streams, storage vessels, reactor batch process vents and non-reactor batch process vents	Title V permit includes all applicable requirements
56	20	Expanded the condition and inserted the applicable requirements for aggregate batch vents under the subpart	Title V permit includes all applicable requirements
57	21	Expanded the condition and inserted the applicable requirements for heat exchange systems under the subpart	Title V permit includes all applicable requirements
58	22	Minor language changes	Clarity and consistency
59	--	Inserted additional 40 CFR 63 subpart OOO requirements for pressure relief devices	Title V permit includes all applicable requirements
60	23	Expanded the condition and inserted the applicable requirements for compliance demonstration procedures	Title V permit includes all applicable requirements
61	23	Expanded the condition and inserted the applicable requirements for testing	Title V permit includes all applicable requirements
62	24	Expanded the condition and inserted the applicable requirements for monitoring	Title V permit includes all applicable requirements
63	24	Expanded the condition and inserted the applicable requirements for recordkeeping	Title V permit includes all applicable requirements

New Permit Condition Number	Old Permit Condition Number	Description of change	Reason for change
64	24	Expanded the condition and inserted the applicable requirements for reporting	Title V permit includes all applicable requirements
65-70	--	Inserted all applicable 40 CFR 63 subpart SS requirements and referenced in Conditions 55 through 70	Title V permit includes all applicable requirements
71-85	--	Inserted all applicable 40 CFR 63 subpart UU requirements and referenced in Conditions 55 through 70	Title V permit includes all applicable requirements
EU: B-1 Emissions Limit Table	Table 7: NESHAP subpart DDDDD	Reorganized table to have LRAPA rule conditions before 40 CFR 63 subpart DDDDD conditions	Clarity and consistency
86	31	Minor language changes; Updated with LRAPA citation	Clarity and consistency; 2018 LRAPA rule revisions
87	32.a	Extracted the monitoring requirement from Condition 32; Expanded visible emissions monitoring schedule for burning of liquid fuel only	Clarity and consistency
88	32	Updated grain loading requirement to reflect LRAPA rule language	2018 LRAPA rule revisions
89	32.b	Extracted the recordkeeping requirement from Condition 32; Added monitoring requirement into the condition	Clarity and consistency; 2018 LRAPA rule revisions
--	25	Removed	Initial compliance notification dates have passed, and requirements have been met
--	25	Removed	Initial compliance notification dates have passed, and requirements have been met
90	27	Added language regarding the burning of gas 1 fuels; Removed startup and shutdown provisions of 40 CFR 63.7500(f)	Clarity and consistency
91	26	Included the date of the initial boiler tune-up	Initial compliance notification dates have passed, and requirements have been met
92	29	Minor condition reorganization	Clarity and consistency
93	30	None	None
94	28	Updated reporting language in the rule	Clarity and consistency
EU: Miscellaneous Emissions Unit Table	Table 8: Miscellaneous EU	None	None
95	33	None	None

New Permit Condition Number	Old Permit Condition Number	Description of change	Reason for change
--	Table 9: Insignificant Activity	Removed	Aligning with Title V permit template
96	--	Emergency generator rating updated in renewal application to >500 HP requiring changes to applicable requirements	Aligning with the language of NESHAP Subpart ZZZZ
97	36	Expanded the language regarding the designation and use of an emergency generator; Included only LRAPA references	Clarity and consistency
--	37-39	Removed	Existing emission unit not applicable due to rating of >500 HP at a major source of HAP
98	34	Minor language changes; Updated rule citation	Clarity and consistency; 2018 LRAPA rule revisions
99	35	None	None
--	40-42	Removed conditions regarding NSPS Subpart JJJJ	Not applicable to any emissions unit at the facility
--	43	Removed Emission-Fees condition	Aligning with Title V permit template
Annual PSELs	Table 3. PSEL	None	None
100	11	Minor language changes; Consolidated rule citations	Clarity and consistency
101	12.a	Minor language changes; Reorganized the parameters for recordkeeping into a table	Clarity and consistency
102	--	Included emission factor table with factors meant to be utilized in the equation in Condition 109.b	Aligning with Title V permit template
103	44	Minor language changes; Updated rule citation	Clarity and consistency; 2018 LRAPA rule revisions
104	--	Added testing requirement for OX-1	Original source test conducted in 2003; Requiring update to ensure complaince
105-107	45-47	None	None
108-111	48-51	None	None
112	57	Included details for the Periodic Reports required by the applicable NESHAPs	Clarity and consistency
113	58	Removed the note on the exemption for the Certificate of Compliance	Updated reporting policies
114	59	None	None
115	56	Included the due date of March 31 for GHG reporting	Clarity and consistency

New Permit Condition Number	Old Permit Condition Number	Description of change	Reason for change
116	52	Update excess emissions language	Aligning with Title V permit template
117-119	53-55	None	None
120	--	Agency address updated for the EPA Region 10 Enforcement and Compliance Assurance Division	Clarity and consistency
121	60	Minor language changes	Clarity and consistency
General Conditions G1. - G29.	General Conditions G1. - G27.	Revised based upon permit template and rule changes	Consistency with rules and Title V permit template

CATEGORICALLY INSIGNIFICANT ACTIVITIES

17. The facility has the following categorically insignificant activities**:**

- Evaporative and tail pipe emissions from on-site motor vehicle operation;
- Distillate oil, gasoline, natural gas, or propane burning equipment, provided the aggregate expected actual emissions of the equipment identified as categorically insignificant do not exceed the de minimis level for any regulated pollutant, based on the expected maximum annual operation of the equipment. If a source's expected emissions from all such equipment exceed the de minimis levels, then the source may identify a subgroup of such equipment as categorically insignificant with the remainder not categorically insignificant. The following equipment may never be included as categorically insignificant;
  - Any individual distillate oil, kerosene or gasoline burning equipment with a rating greater than 0.4 million Btu/hour;
  - Any individual natural gas or propane burning equipment with a rating greater than 2.0 million Btu/hour.
- Distillate oil, kerosene, gasoline, natural gas or propane burning equipment brought on site for six months or less for maintenance, construction or similar purposes, such as but not limited to generators, pump, hat water pressure washers and space heaters, provided that any such equipment that performs the same function as the permanent equipment, must be operated within the source's existing PSEL;
- Office activities;
- Janitorial activities;
- Groundskeeping activities including, but not limited to building painting and road and parking lot maintenance;
- Maintenance and repair shop;
- Automotive repair shops or storage garages;
- Air cooling or ventilating equipment not designed to remove air contaminants generated by or released from associated equipment;
- Refrigeration systems with less than 50 pounds of charge of ozone depleting substances regulated under Title VI, including pressure tanks used in refrigeration systems but excluding any combustion equipment associated with such systems;
- Temporary construction activities;
- Warehouse activities;
- Accidental fires;
- Air vents from air compressors;
- Electrical charging station;
- Fire Brigade Training;

- Fire suppression;
- Routine maintenance, repair, and replacement such as anticipated activities most often associated with and performed during regularly scheduled equipment outages to maintain a plant and its equipment in good operating condition, including but not limited to steam cleaning, abrasive use, and woodworking;
- Electric motors;
- Storage tanks, reservoirs, transfer and lubricating equipment used for ASTM grade distillate or residual fuels, lubricants, and hydraulic fluids;
- On-site storage tanks not subject to any New Source Performance Standards (NSPS), including underground storage tanks (UST), storing gasoline or diesel used exclusively for fueling of the facility's fleet of vehicles;
- Natural gas, propane, and liquefied petroleum gas (LPG) storage tanks and transfer equipment;
- Pressurized tanks containing gaseous compounds;
- Vacuum sheet stacker vents;
- Emissions from wastewater discharges to publicly owned treatment works (POTW) provided the source is authorized to discharge to the POTW, not including on-site wastewater treatment and/or holding facilities
- Fire suppression and training;
- Paved roads and paved parking lots within an urban growth boundary;
- Hazardous air pollutant emissions of fugitive dust from paved and unpaved roads, except for those sources that have processes or activities that contribute to the deposition and entrainment of hazardous air pollutants from surface soils;
- Health, safety, and emergency response activities;
- Emergency generators and pumps used only during loss of primary equipment or utility service due to circumstances beyond the reasonable control of the owner or operator, or to address a power emergency, provided that the aggregate horsepower rating of all stationary emergency generator and pump engines is not more than 3,000 horsepower. If the aggregate horsepower rating of all stationary emergency generator and pump engines is more than 3,000 horsepower, then no emergency generators and pumps at the source may be considered categorically insignificant;
- Uncontrolled oil/water separators in effluent treatment systems, excluding systems with a throughput of more than 400,000 gallons per year of effluent located at petroleum refineries, sources that perform petroleum refining and re-refining of lubricating oils and greases including asphalt production by distillation and the reprocessing of oils and/or solvents for fuels; or bulk gasoline plants, bulk gasoline terminals, and pipeline facilities; and
- Combustion source flame safety purging on startup.

EMISSION LIMITS AND STANDARDS, TESTING, MONITORING, AND RECORDKEEPING

18. The following sections describe each applicable requirement and monitoring requirement in the permit, with the intent of the condition and a brief discussion of any unique features of the requirement.

    18.a. Conditions 1 and 2 are general statements required in and common to all Title V permits issued by LRAPA.

    18.b. Condition 3 provides a list of equipment and identification of pollution control devices for the facility.

    18.c. Condition 4 is a facility-wide fugitive dust control requirement that allows the permittee to deal with potential fugitive dust problems before they become standard violations. The reasonable precautions can be required without the need to show a violation of 20% opacity for sources where reading opacity is difficult (e.g., dust from traffic on roads).

    18.d. Condition 5 is a visible emissions monitoring requirement for demonstrating compliance with the facility-wide fugitive requirements of Condition 4.

    18.e. Condition 6 includes the recordkeeping requirements of the VE surveys in Condition 5.

18.f. Condition 7 is a facility-wide condition that prohibits the facility from causing a nuisance and establishes timely response to any complaints that the facility operation may generate.

18.g. Condition 8 implements the long-standing particulate matter fallout provisions in LRAPA rules.

18.h. Condition 9 implements the LRAPA prohibition of discharging emissions that could cause injury or damage to persons or property.

18.i. Condition 10 is a monitoring requirement for maintaining a log of nuisance complaints and actions taken by the facility's responses to ensure compliance with Conditions 7 through 9.

18.j. Condition 11 implements emergency actions required of the facility in the event that air quality becomes so unhealthy that facility curtailments are necessary.

18.k. Condition 12 is a monitoring requirement for maintaining a log of air pollution episodes and emission reduction actions taken by the facility's responses to ensure compliance with Condition 13.

18.l. Condition 13 is a fuel requirement detailing the types of fuels that can be utilized at the facility and the sulfur content limits when using fuel oil.

18.m. Condition 14 is a monitoring requirement for obtaining certifications or SDS to verify the sulfur content of each shipment of fuel oil meets the standards in Condition 15.

18.n. Condition 15 is a standard requirement for Title V facilities stating the permittee's responsibility for the 40 CFR Part 68 accidental release provisions.

18.o. Conditions 16-18 are the Epoxy Resins and Non-Nylon Polyamides Production NESHAP (40 CFR 63 subpart W) requirements that apply to EU: LDAR.

18.p. Conditions 19-46 contain the Equipment Leak NESHAP (40 CFR 63 subpart H) requirements that apply to EU: LDAR.

18.q. Conditions 47-50 are the Organic Liquids Distribution (Non-Gasoline) NESHAP (40 CFR 63 subpart EEEE) requirements that apply to EU: LOAD-1.

18.r. Conditions 51-64 contain the Manufacture of Amino/Phenolic Resins NESHAP (40 CFR subpart OOO) requirements that apply to EU: OX-1 and EU: CT-1.

18.s. Conditions 65-70 are the Closed Vent Systems NESHAP (40 CFR subpart SS) requirements referenced in Conditions 51-64 and applicable to EU: OX-1 and EU: CT-1.

18.t. Conditions 71-85 are the Equipment Leaks – Control Level 2 Standards NESHAP (40 CFR subpart UU) requirements referenced in Conditions 51-64 and applicable to EU: OX-1 and EU: CT-1.

18.u. Condition 86 is the opacity requirement for the boiler in EU: B-1.

18.v. Condition 87 contains visible emissions monitoring requirements to establish compliance with Condition 86 when burning liquid fuel.

18.w. Condition 88 is the grain loading limit for the boiler in EU: B-1.

18.x. Condition 89 is a monitoring and recordkeeping requirement for demonstrating compliance with the limit in Condition 88.

18.y. Conditions 90-94 contains the Industrial, Commercial, and Institutional Boilers and Process Heaters NESHAP requirements (40 CFR 63 subpart DDDDD) that apply to EU: B-1

18.z. Condition 95 contains LRAPA 34-034 tank service notification for any change of service of an existing tank at the facility.

18.aa. Conditions 96-97 contains the Stationary Reciprocating Internal Combustion Engines NESHAP requirements (40 CFR 63 subpart ZZZZ) and LRAPA-specific requirements that apply to the emergency generator in EU: EG-1.

18.bb. Condition 98-99 contains the particulate matter grain loading and opacity limitations that apply to Insignificant Emission Units (IEUs) at the facility.

18.cc. Condition 100 lists the annual (12 consecutive calendar month period) Plant Site Emission Limits (PSELs), Unassigned Emissions and Emission Reduction Credits (ECRs) for the facility.

18.dd. Condition 101 contains the monitoring requirements needed to demonstrate compliance with the PSELs in Condition 100.

18.ee. Condition 101.a contains the monitoring and recordkeeping requirements for all facility process parameters needed to demonstrate compliance with the PSELs in Condition 100.

18.ff. Condition 101.b is the equation used to estimate emissions for PSELs using the production data monitored in Condition 100.a and the emission factors in Condition 102.

18.gg. Condition 102 is a table of emission factors for use in calculating facility emissions. The factors are to be used in determining PSELs for all operating scenarios. Requirements for emission factor verification testing are also identified.

18.hh. Condition 103 contains the general testing requirements for source tests at the facility.

18.ii. Condition 104 contains specific testing requirements for the RTO in EU: OX-1.

18.jj. Conditions 105-109 contain the general monitoring requirements for the facility.

18.kk. Conditions 108-111 contain the general recordkeeping requirements for the facility.

18.ll. Conditions 112-115 are the specific annual and semi-annual reporting requirements for the facility.

18.mm. Condition 116 contains the excess emissions reporting requirements for the facility.

18.nn. Condition 117 contains the requirements for reporting permit deviations.

18.oo. Conditions 118-120 contain general reporting requirements for the facility.

18.pp. Condition 121 specifies the non-applicable requirements that could reasonably be considered to apply to the facility.

18.qq. The conditions following Condition 121 are general requirements (General Conditions G1-G29) applicable to Title V sources.

EMISSION LIMITS FOR INSIGNIFICANT ACTIVITIES

19. As identified earlier in this Review Report, this facility has insignificant emissions units (IEUs) that include categorically insignificant activities and aggregate insignificant emissions, as defined in LRAPA title 12 and/or OAR 340-200-0020. For the most part, the standards that apply to IEUs are for opacity and particulate matter. 40 CFR 70.6(a)(3) of the federal Title V permit rules, requires all monitoring and analysis procedures or test methods required under applicable requirements be contained in Title V permits. In addition, where the applicable requirement does not require periodic testing or monitoring, periodic monitoring must be prescribed that is sufficient to yield reliable data from the relevant time period that is representative of the facility's compliance with the permit. However, the requirements to include in a permit testing, monitoring, recordkeeping, reporting, and compliance certification sufficient to assure compliance does not require the permit to impose the same level of rigor with respect to all emissions units and applicable requirement situations. It does not require extensive testing or monitoring to assure compliance with the applicable requirements for emissions units that do not have significant potential to violate emission limitations or other requirements under normal operating conditions. Where compliance with the underlying applicable requirement for an insignificant emission unit is not threatened by a lack of a regular program of monitoring and where periodic testing or monitoring is not otherwise required by the applicable requirement, then in this instance the status quo (i.e., no monitoring) will meet Section 70.6(a)(3). For this reason, this permit includes limited requirements for categorically insignificant activities.

FEDERAL REQUIREMENTS

Chemical Accident Prevention Provisions

20. The Title V permit includes standard language related to 40 CFR Part 68 – Chemical Accident Prevention Provisions. The facility is subject to these provisions and must satisfy all the applicable risk management requirements, including the development of a risk management plan.

Stratospheric Ozone-Depleting Substances

21. The facility does not manufacture, sell, distribute, or use in the manufacturing of a product any stratospheric ozone-depleting substances and the EPA 1990 Clean Air Act as amended, Sections 601-618, do not apply to the facility except that air conditioning units and fire extinguishers containing Class I or Class II substances must be serviced by certified repairmen to ensure that the substances are recycled or destroyed appropriately.

New Source Performance Standards

22. The facility is not currently subject to any New Source Performance Standards (40 CFR Part 60).

National Emission Standards for Hazardous Air Pollutants (NESHAP)

40 CFR Part 61 Subpart FF – National Emission Standard for Benzene Waste Operations

23. As a chemical manufacturing plant, this facility is applicable to this subpart in accordance with 40 CFR 61.340(a). The Eugene facility does not use, process, or generate benzene or benzene containing material and therefore does not generate a benzene-containing waste stream except to the extent benzene may be present in trace amounts as an impurity. Pursuant to 40 CFR 61.357(a), the facility submitted an initial notification with the facility's compliance status report in September 2006. The facility is not subject to any other requirements under this subpart.

40 CFR Part 63 Subpart W – National Emission Standards for Hazardous Air Pollutants for Epoxy Resins Production and Non-Nylon Polyamides Production

24. In accordance with 40 CFR 63.520, as a manufacturer of wet strength resins (WSR) located at a plant site that is a major source, this facility is subject to the requirements of 40 CFR 63 subpart W. The facility has elected to implement the leak detection and repair program of 40 CFR 63 subpart H – National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks, to control emissions from equipment leaks for EU: LDAR. The applicable standards of 40 CFR 63 subpart H for the facility are in the following section.

40 CFR Part 63 Subpart H – National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks

25. The facility has elected to implement the requirements of 40 CFR 63 subpart H to control emissions from equipment leaks for EU: LDAR. The 40 CFR 63 subpart H requirements that are applicable to EU: LDAR are identified in the following table:

40 CFR 63 subpart H Citation	Description	Applicable to Source (Yes/No)	Comments	Permit Condition(s)
63.160	Applicability	Yes	None	NA
63.161	Definitions	Yes	None	NA

40 CFR 63 subpart H Citation	Description	Applicable to Source (Yes/No)	Comments	Permit Condition(s)
63.162	General standards	Yes	Equipment that is in organic HAP service less than 300 hours per calendar year is excluded	19-25
63.163	Pumps in light liquid service	Yes	None	26
63.164	Compressors	Yes	None	27
63.165	Pressure relief devices in gas/vapor service	Yes	None	28
63.166	Sampling connection systems	Yes	None	29
63.167	Open-ended vales or lines	Yes	None	30
63.168	Valves in gas/vapor service and in light liquid service	Yes	None	31
63.169	Pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service	Yes	None	32
63.170	Surge control vessels and bottoms receivers	Yes	None	33
63.171	Delay of repair	Yes	None	34
63.172	Closed-vent systems and control devices	Yes	None	35
63.173	Agitators in gas/vapor service and in light liquid service	Yes	None	36
63.174	Connectors in gas/vapor service and in light liquid service	Yes	None	37
63.175	Quality improvement program for valves	No	None	NA
63.176	Quality improvement program for pumps	No	None	NA
63.177	Alternative means of emission limitation: General	Yes	None	38
63.178	Alternative means of emission limitation: Batch processes	Yes	None	39
63.179	Alternative means of emission limitation: Enclosed-vented process units	Yes	None	40
63.180	Test methods and procedures	Yes	None	41
63.181	Recordkeeping	Yes	None	42
63.182	Reporting	Yes	None	43
63.183	Implementation and enforcement	Yes	None	NA

40 CFR Part 63 Subpart EEEE – National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)

26. The facility is subject to 40 CFR 63 Subpart EEEE Organic Liquid Distribution MACT because the plant loads organic HAPs with a weight percent of 98% or greater in trucks for shipment offsite. The plant submitted an Initial Notification in May 2004 and the Initial Notice of Compliance Report for this standard on July 25, 2007. The facility has accepted a federally enforceable limit on the loading of organic liquids (i.e., liquids with an organic HAP weight percent of 98 percent or more) of 800,000 gallons/year and another

federally enforceable limit on the loading of organic liquids with a HAP content of 5% or more of 10,000,000 gallons per year as specified under 40 CFR 63, Subpart EEEE Table 2, Items 7 and 8. With these federally-enforceable transfer rack throughput limitations, the facility is not subject to any of the control standards in Subpart EEEE. The 40 CFR 63 subpart EEEE requirements that are applicable to EU: LOAD-1 are identified in the following table:

40 CFR 63 subpart EEEE Citation	Description	Applicable to Source (Yes/No)	Comments	Permit Condition
63.2330	Purpose	Yes	None	NA
63.2334	Applicability	Yes	None	NA
63.2338	Covered processes	Yes	LOAD-1 transfer rack is the affected source	NA
63.2342	Compliance dates	Yes	Initial Notice of Compliance Report submitted July 25, 2007	NA
63.2343	Uncontrolled emission sources	Yes	Documentation requirements for uncontrolled emission sources	48-49
63.2346	Emission limitations, operating limits, and work practices	Yes	Compliance requirements if loading volume meets criteria for control	NA
63.2350	General requirements	Yes	None	NA
63.2354	Performance testing	No	None	NA
63.2358	Performance test compliance dates	No	None	NA
63.2362	Subsequent performance tests	No	None	NA
63.2366	Monitoring, operation, and maintenance requirements	No	None	NA
63.2370	Initial compliance demonstration	No	None	NA
63.2374	Continuous compliance dates	No	None	NA
63.2378	Demonstrating continuous compliance	No	None	NA
63.2380	Flare requirements	No	None	NA
63.2382	Notification requirements	No	None	NA
63.2386	Reporting	No	None	NA
63.2390	Recordkeeping	Yes	Maintaining records of loading volumes below control criteria	50
63.2394	Record retention	Yes	None	NA
63.2396	Compliance options	Yes	None	NA
63.2398	General provisions	Yes	None	NA
63.2402	Implementation and enforcement	Yes	None	NA
63.2406	Definitions	Yes	None	NA
Table 2	Emission Limits	Yes	Subject to limitations in Items 7 and 8 of the table	47

40 CFR Part 63 Subpart OOO – National Emission Standards for Hazardous Air Pollutant Emissions: Manufacture of Amino/Phenolic Resins

27. The facility is subject to 40 CFR 63 Subpart OOO Manufacture of Amino/Phenolic Resins because they produce amino/phenolic resins and are located at a plant site that is a major source of hazardous air

pollutants. Additionally, 40 CFR 63 subpart SS (Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or a Process) and 40 CFR 63 subpart UU (LDAR) are incorporated into 40 CFR 63 subpart OOO by reference and have been included in the permit in Conditions 66-71 and 72-86, respectively. The facility established compliance with 40 CFR 63 subpart OOO general requirements by January 20, 2003, the storage vessel requirements and the pressure relief device monitoring requirements by October 9, 2017, and the continuous process vent requirements by October 15, 2019. The 40 CFR 63 subpart OOO requirements that are applicable to EU: OX-1 and EU: CT-1 are identified in the following table:

40 CFR 63 subpart OOO Citation	Description	Applicable to Source (Yes/No)	Comments	Permit Condition(s)
63.1400	Applicability	Yes	None	NA
63.1401	Compliance schedule	Yes	Compliance dates met	NA
63.1402	Definitions	Yes	None	NA
63.1403	Emissions standards	Yes	Included applicable 40 CFR subpart SS requirements in Conditions 66-71	51-52
63.1404	Storage vessel	Yes	Currently have no storage vessels meeting criteria for control	53
63.1405	Continuous process vent	Yes	None	54
63.1406	Reactor batch	Yes	Electing to reduce organic HAP emissions by 83 weight percent	55
63.1407	Non-reactor batch	Yes	None	56
63.1408	Aggregate batch	Yes	None	57
63.1409	Heat exchange system	Yes	None	58
63.1410	Equipment leak	Yes	Included applicable 40 CFR subpart UU requirements in Conditions 72-86	59
63.1411	Pressure relief devices	Yes	None	60
63.1412	Continuous process vent	No	Not a new affected source	NA
63.1413	Compliance demonstration	Yes	Maintained initial notification language for storage vessels for potential future applicability	61
63.1414	Test methods and emission estimates	Yes	None	62
63.1415	Monitoring	Yes	None	63
63.1416	Recordkeeping	Yes	None	64
63.1417	Reporting	Yes	None	65
63.1419	Implementation and enforcement	Yes	None	NA

40 CFR Part 63 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

28. The facility is subject to 40 CFR 63 subpart DDDDD because they operate a boiler (EU: B-1) that is located at a major source of HAP. EU: B-1 is categorized as an existing “unit designed to burn gas 1” per 40 CFR 63.7575 and therefore is only subject to the work practice standards requirements of 40 CFR 63 subpart DDDDD. The facility certified compliance with 40 CFR 63 subpart DDDDD on February 17, 2016 and conducted the one-time energy assessment of the boiler and its energy use systems on December 18, 2015. The initial tune-up requirement was completed August 12, 2015. The 40 CFR 63 subpart DDDDD requirements that are applicable to EU: B-1 are identified in the following table:

40 CFR 63 subpart DDDDD Citation	Description	Applicable to Source (Yes/No)	Comments	Permit Condition(s)
63.7480	Purpose	Yes	None	NA
63.7485	Applicability	Yes	None	NA
63.7490	Affected source	Yes	None	NA
63.7491	Exceptions to affected source	No	None	NA
63.7495	Compliance dates	Yes	Compliance dates met	NA
63.7499	Subcategories	Yes	None	NA
63.7500	Emission limitations, work practice standards, and operating limits	Yes	Boilers designed to burn gas 1 fuels not subject to emission or operating limits	91
63.7505	General requirements	Yes	None	NA
63.7510	Initial compliance requirements	No	None	NA
63.7515	Subsequent performance tests, fuel analyses, or tune-ups	No	None	NA
63.7520	Stack tests and procedures	No	None	NA
63.7521	Fuel analyses, fuel specifications, and procedures	No	None	NA
63.7522	Emissions averaging	No	None	NA
63.7525	Monitoring, installation, operation, and maintenance requirements	No	None	NA
63.7530	Initial compliance with emission limitations, fuel specifications and work practice standards	No	None	NA
63.7533	Efficiency credits	No	None	NA
63.7535	Minimum monitoring data	No	None	NA
63.7540	Continuous compliance with emission limitations, fuel specifications and work practice standards	Yes	Annual tune-up of the boiler in EU: B-1 required	92
63.7541	Continuous compliance with emission averaging	No	None	NA
63.7545	Notifications	Yes	None	NA
63.7550	Reports	Yes	None	93-94
63.7555	Records	Yes	None	95
63.7560	Form and retention of records	Yes	None	95
63.7565	General Provision applicability	Yes	None	NA
63.7570	Implementation and enforcement	Yes	None	NA
63.7575	Definitions	Yes	None	NA

40 CFR Part 63 Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

29. The facility has one (1) 749 hp diesel-fired emergency generator (EG-1). NESHAP: Stationary Reciprocating Internal Combustion Engines (Subpart ZZZZ) is applicable to this facility and all requirements have been incorporated into the permit.

40 CFR 63 subpart ZZZZ Citation	Description	Applicable to Source (Yes/No)	Comments	Permit Condition
63.6580	Purpose	Yes	None	NA
63.6585	Applicability	Yes	None	NA
63.6590	Applicability	Yes	Stationary RICE subject to limited requirements	97
63.6600	Emission limitations	No	None	NA
63.6601	Emission limitations	No	None	NA
63.6602	Emission limitations	No	None	NA
63.6603	Emission limitations	No	None	NA
63.6604	Fuel requirements	No	None	NA
63.6605	General requirements	No	None	NA
63.6610	Initial compliance	No	None	NA
63.6611	Initial performance test	No	None	NA
63.6612	Initial performance test	No	None	NA
63.6615	Subsequent performance tests	No	None	NA
63.6620	Performance test procedures	No	None	NA
63.6625	Monitoring and maintenance requirements	No	None	NA
63.6630	Initial compliance	No	None	NA
63.6635	Continuous compliance	No	None	NA
63.6640	Continuous compliance	No	None	NA
63.6645	Notifications	No	None	NA
63.6650	Reports	No	None	NA
63.6655	Records	No	None	NA
63.6660	Record retention	No	None	NA
63.6665	General provisions	No	None	NA
63.6670	Implementation and enforcement	No	None	NA
63.6675	Definitions	No	None	NA

Compliance Assurance Monitoring (CAM)

30. The facility is not subject to the provisions of 40 CFR Part 64 – Compliance Assurance Monitoring (CAM) because it does not have any control equipment, emission limitations or pre-control emissions at or above Title V major source levels for any one (1) pollutant-specific emission unit. The following table evaluates CAM applicability for all emission units:

Emission Unit	Uses a Control Device for a Regulated Pollutant	Pollutant	Uncontrolled Potential Emissions Exceed Major Source Threshold	Emission Limitation or Standard Applies for this Pollutant	Subject to CAM for the Pollutant
B-1	No	--	--	--	NA
OX-1	Yes	VOC	No	Yes	No
OX-1	Yes	HAP	No	Yes	No
LOAD-1 (MeOH)	Yes	VOC	No	No	No
LOAD-1 (MeOH)	Yes	HAP	No	No	No
LOAD-1 (UFC)	No	--	--	--	NA
CT-1	No	--	--	--	NA
LDAR	No	--	--	--	NA

Emission Unit	Uses a Control Device for a Regulated Pollutant	Pollutant	Uncontrolled Potential Emissions Exceed Major Source Threshold	Emission Limitation or Standard Applies for this Pollutant	Subject to CAM for the Pollutant
Miscellaneous Emission Units					
Urea	Yes	PM	No	No	No
RESI-MIX®	Yes	PM	No	No	No
Salt	Yes	PM	No	No	No
301	Yes	PM	No	No	NA
Polyamide Resin Tanks	No	--	--	--	NA
Methanol Distillate Tanks	No	--	--	--	NA
305	No	--	--	--	NA
AQ-1	No	--	--	--	NA
PF Resin Tanks	No	--	--	--	NA
UF Resin Tanks	No	--	--	--	NA
Phenol Storage Tanks	No	--	--	--	NA
Formaldehyde Storage Tanks	No	--	--	--	NA
DETA Storage Tank	No	--	--	--	NA
Prepolymer Storage Tanks	No	--	--	--	NA
IPA Storage Tank	Yes	VOC	No	No	No
Epichlorohydrin Storage Tanks	Yes	VOC	No	No	No
Epichlorohydrin Storage Tanks	Yes	HAP	No	No	No
DF-1	No	--	--	--	NA
Precatalyst Storage Tank	No	--	--	--	NA
WRP	No	--	--	--	NA
LOAD-2	No	--	--	--	NA
TW-1	No	--	--	--	NA
PR-1	No	--	--	--	NA

PLANT SITE EMISSION LIMIT (PSEL) INFORMATION

31. Provided below is a summary of the baseline emission rate, netting basis, plant site emission limit and emissions capacity.

Pollutant	Baseline (tons/yr)	Netting Basis		Plant Site Emission Limit (PSEL)			PTE (tons/yr)
		Previous (tons/yr)	Proposed (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	PSEL Increase over the Netting Basis (tons/yr)	
PM	1.9	2.5	1.9	24	24	22	1
PM_{10}	1.9	2.5	1.9	14	14	12	1
$PM_{2.5}$	NA	2.5	1.9	9	9	7	1
CO	4.5	4.5	4.5	99	99	95	34
NO_X	17.8	17.8	17.8	39	39	21	28
SO_2	9.1	9.1	9.1	39	39	30	1
VOC	2.7	2.7	2.7	39	39	36	14
GHG	2,862	2,862	2,862	74,000	74,000	71,138	25,035

31.a. Baseline emissions rates (BERs) for PM, PM_{10}, CO, NO_X, SO_2, and VOC were determined in previous permitting actions. There are no changes for the BERs for CO, NO_X, SO_2 or VOC. The PM and PM_{10} BERs were corrected to reflect the values that were reported by the facility in the original Title V permit application.

In 1978, the facility was owned and operated by Pacific Resins and Chemicals. In addition to resin manufacturing, Pacific Resins operated a formaldehyde plant which ceased operation in 1980. In November of 1981, the plant was purchased by GP Chemicals which operated only the resin manufacturing facility. The formaldehyde plant emissions were not banked prior to GP purchase and were not considered part of GP's baseline emissions. Particulate and gaseous emissions for the 1978 baseline reflect only the resin manufacturing facility.

31.b. A baseline emission rate was not required for $PM_{2.5}$ in accordance with the definition of "baseline emission rate" in LRAPA Title 12. The $PM_{2.5}$ netting basis was established in a previous permitting term.

31.c. The baseline emission rate for greenhouse gases (GHGs) was established in the previous permitting term and was based on the actual emission of anthropogenic CO_2e emissions established by using the 2009 calendar year. The Cleaver Brooks boiler (EU: B-1) natural gas combustion was reporting in the 2009 annual compliance certification was used to calculate the CO_2e emissions. The GHG calculations can be found in Appendix B of this Review Report. Compliance with the GHG PSEL is provided by way of the annual reporting required by OAR 340 division 215.

31.d. The PSELs for all pollutants are established at the generic PSEL level in accordance with Subsection 42-0041(1) of LRAPA title 42.

31.e. Detailed calculations for the proposed PSELs and facility PTE for all pollutants can be found in the emissions detail sheets of this Review Report.

UNASSIGNED EMISSIONS AND EMISSION REDUCTION CREDITS

32. The facility does not have any unassigned emissions or emission reduction credits at this time.

SIGNIFICANT EMISSION RATE

33. The proposed PSEL increase over the netting basis is less than the Significant Emission Rate (SER) as defined in LRAPA title 12 rules for all of the pollutants as shown below.

Pollutant	Netting Basis (tons/year)	Proposed PSEL (tons/year)	Increase from Netting Basis (tons/year)	SER (tons/year)
PM	1.9	24	22	25
PM_{10}	1.9	14	12	15
$PM_{2.5}$	1.9	9	7	10
CO	4.5	99	95	100
NO_x	17.8	39	21	40
SO_2	9.1	39	30	40
VOC	2.7	39	36	40
GHG	2,862	74,000	71,138	75,000

HAZARDOUS AIR POLLUTANTS (HAPS)

34. Under the Cleaner Air Oregon program, only existing sources that have been notified by LRAPA and new sources are required to perform risk assessments. This source has not been notified by LRAPA and is therefore, not yet required to perform a risk assessment or report annual emissions of toxic air contaminants.

    LRAPA required reporting of approximately 600 toxic air contaminants in 2016 and 2020 and regulates approximately 260 toxic air contaminants that have Risk Based Concentrations established in rule. All 187 hazardous air pollutants are on the list of approximately 600 toxic air contaminants. After the source is notified by LRAPA, they must update their inventory and perform a risk assessment to see if they must reduce risk from their toxic air contaminant emissions. Until then, sources will be required to report toxic air contaminant emissions triennially.

35. The following is the potential to emit (tons per year) of the facility for the highest contributing hazardous air pollutants listed in Section 112(b) of the 1990 Clean Air Act Amendments (CAAA). Though emissions of HAPs reflect that Bakelite is under the major source limit of 10 tons per year of any single HAP and/or 25 tons per year of total HAP, the facility is maintaining their status as a major source.

Hazardous Air Pollutants	Potential Emissions (tons/yr)
Epichlorohydrin	1.53
Formaldehyde	3.13
Hexane	0.48
Hydrochloric Acid	2.51
Methanol	3.49
Phenol	2.95
Total	**14.09**

MONITORING REQUIREMENTS

36. Section 70.6(a)(3) of the federal Title V permit rules, requires all monitoring and analysis procedures or test methods required under applicable requirements be contained in Title V permits. In addition, where the applicable requirement does not require periodic testing or monitoring, periodic monitoring must be prescribed that is sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit.

    However, the requirements to include in a permit testing, monitoring, recordkeeping, reporting, and compliance certification sufficient to assure compliance does not require the permit to impose the same level of rigor with respect to all emissions units and applicable requirement situations. It does not require extensive testing or monitoring to assure compliance with the applicable requirements for emissions units that do not have significant potential to violate emission limitations or other requirements under normal operating conditions. Where compliance with the underlying applicable requirement for an insignificant emission unit is not threatened by a lack of a regular program of monitoring and where periodic testing or monitoring is not otherwise required by the applicable requirement, then in this instance, the status quo (i.e., no monitoring) will meet section 70.6(a)(3). For this reason, this permit does not include any monitoring for insignificant emissions units and activities.

    The Title V permit does include monitoring for all requirements that apply to significant emissions units in addition to the testing requirements in the permit. Periodic visible emissions observations are required for all particulate emissions sources. In addition, the permit includes monitoring of operating parameters for other

emission units and pollution control devices. It is assumed that as long as these processes and controls are properly operated, the particulate emissions levels will be below the emissions limits specified in the permit.

The facility is required to record material production and throughput totals and to estimate actual emissions. The estimations are to be based upon production data, emission factors and estimation methods used in the facility's application or other LRAPA approved method.

GENERAL TESTING REQUIREMENTS

37. This section is provided so that the permittee and LRAPA will know what test methods should be used to measure pollutant emissions in the event that testing is conducted for any reason. This section does not by itself require the permittee to conduct any more testing than was previously included in the permit. Although the permit may not require testing because other routine monitoring is used to determine compliance, LRAPA and EPA always have the authority to require testing if deemed necessary to determine compliance with an emission limit or standard. In addition, the permittee may elect to voluntary conduct testing to confirm the compliance status. In either case, the methods to be used for testing in the event that testing is conducted are included in the permit. This is true for SIP as well as NSPS emission limits and standards.

SOURCE TEST RESULTS

38. This facility conducted a source test in April 2003 on the RTO control device to demonstrate that the RTO had a destruction removal efficiency of at least 95% for VOCs. In addition, the facility had to demonstrate a destruction removal efficiency of 83% by weight or greater for HAPs at normal or greater operating conditions per 40 CFR 63 subpart OOO requirements. The only tested pollutant that returned results that were below detection level (BDL) was phenol. The test results from the April 2003 test are included in the table below:

Emission Unit and Control Device		Test Date	Pollutant	Results		
				Inlet (lb/hr)	Outlet (lb/hr)	Destruction Efficiency (%)
EU: OX-1	RTO (Average test temperature: 1483 °F)	04/16/2003	VOC (as propane)	2.30	0.05	97.8
			Formaldehyde	0.0496	0.0033	93.4
			Methanol	0.7495	0.0189	97.5
			Epichlorohydrin	1.5042	0.0492	96.7
			Phenol	BDL	BDL	NA

The facility is required to test the RTO in EU: OX-1 within one (1) year of the expiration date of the permit and the testing details are listed in Condition 104 of the permit.

RECORDKEEPING REQUIREMENTS

39. The permit includes requirements for maintaining records of all testing, monitoring, and production information necessary for assuring compliance with the standards and calculating plant site emissions. The records of all monitoring specified in the Title V permit must be kept at the plant site for at least five (5) years.

REPORTING REQUIREMENTS

40. The permit includes a requirement for submitting semi-annual and annual monitoring reports that include semi-annual compliance certifications. Excess emissions are required to be reported to LRAPA immediately as well as in a logbook attached to the annual report. Emissions fees reports are required annually.

COMPLIANCE HISTORY

41. The facility entered into a Stipulated Final Order (SFO 03-2521) on January 29, 2003, to resolve issues related to the facility becoming a major source and applying for a Title V permit. Civil penalties were issued in the sum of $11,400 for three (3) separate violations related to the facility operating in excess of major source limits.

42. As of the date of this permit issuance, there are no open enforcement actions or non-compliances for this facility.

43. This facility is regularly inspected by LRAPA and occasionally by other regulatory agencies. The following table indicates the inspection history of this facility since the issuance of the Title V operating permit in 2003:

Type of Inspection	Date	Results
LRAPA - Full Compliance Evaluation	09/30/2003	In Compliance
LRAPA - Full Compliance Evaluation	09/26/2005	In Compliance
LRAPA - Full Compliance Evaluation	09/30/2007	In Compliance
LRAPA - Full Compliance Evaluation	09/30/2009	In Compliance
LRAPA - Full Compliance Evaluation	08/31/2011	In Compliance
LRAPA - Full Compliance Evaluation	09/19/2013	In Compliance
LRAPA - Full Compliance Evaluation	09/21/2015	In Compliance
LRAPA - Full Compliance Evaluation	09/21/2017	In Compliance
LRAPA - Full Compliance Evaluation	10/23/2019	In Compliance
LRAPA - Full Compliance Evaluation	09/07/2021	In Compliance

PUBLIC NOTICE

44. This permit was on public notice from November 11, 2022 to December 16, 2022. No comments were submitted in writing during the comment period. This proposed permit is being sent to EPA for a 45-day review period. LRAPA requests and EPA may agree to an expedited review since there were no substantive or adverse comments during the comment period.

    If the EPA does not object in writing, any person may petition the EPA within 60 days after the expiration of EPA's 45-day review period to make such objection. Any such petition must be based only on objections to the permit that were raised with reasonable specificity during the public comment period provided for in OAR 340-218-0210, unless the petitioner demonstrates that it was impracticable to raise such objections within such period, or unless the grounds for such objection arose after such period.

EPA REVIEW

45. This proposed permit was sent to EPA on December 16, 2022, for a 45-day review period. Because no adverse comments were received and there were no substantive changes to the permit after the public comment period, LRAPA requested, and EPA agreed to expedited review. The public will have 60 days from the expiration of EPA's 45-day period to petition the EPA to make objections to the permit. Any such petition must be based only on objections to the permit that were raised with reasonable specificity during the public comment period provided for in OAR 340-218-0210, unless the petitioner demonstrates it was impracticable to raise such objections within such period, or unless the grounds for such objection rose after such period.

EMISSIONS DETAIL SHEETS

46. Detailed emission calculations and supporting information are found in the following appendices:

Appendix A: PTE Emission Calculations
Appendix B: GHG PTE and Baseline Calculations Devices
Appendix C: EU: LDAR VOC Emissions Calculations
Appendix D: EU: Miscellaneous Emissions Unit – Storage Tanks
Appendix E: EU: LOAD-2 Emissions Calculations

FACILITY POTENTIAL TO EMIT (PTE) EMISSIONS DETAIL SHEET

Pollutant	Emission Unit	Annual Production or Process Rate		Emissions Factor			Emissions
		Rate	Units	Rate	Units	Reference	tons/yr
PM	EU: B-1 Boiler (Firing Natural Gas)	540,229	MMBtu/yr	2.44E-03	lb/MMBtu	ODEQ AQ-EF05	0.7
	EU: B-1 Boiler (Firing Fuel Oil)	2,960	MMBtu/yr	2.39E-02	lb/MMBtu	ODEQ AQ-EF04	0.035
	EU: OX-1 (Firing Natural Gas)	6,570	MMBtu/yr	2.44E-03	lb/MMBtu	ODEQ AQ-EF05	0.008
	EU: CT-1 Cooling Tower	3,048,480	Mgal/yr	6.67E-05	lb/Mgal	Manufacturer-based calculation	0.10
	EUs: Urea, RESI-MIX and Dry Chemical Blower	8,760	hr/yr	4.25E-02	lb/hr	LRAPA Estimate	0.19
	EU: Miscellaneous PR-1	5,452	VMT	0.12	lb/VMT	AP-42 Section 13.2.1	0.34
						Total PM	**1.3**
PM_{10}	EU: B-1 Boiler (Firing Natural Gas)	540,229	MMBtu/yr	2.44E-03	lb/MMBtu	ODEQ AQ-EF05	0.7
	EU: B-1 Boiler (Firing Fuel Oil)	2,960	MMBtu/yr	1.67E-02	lb/MMBtu	ODEQ AQ-EF04	0.025
	EU: OX-1 (Firing Natural Gas)	6,570	MMBtu/yr	2.44E-03	lb/MMBtu	ODEQ AQ-EF05	0.008
	EU: CT-1 Cooling Tower	3,048,480	Mgal/yr	6.67E-05	lb/Mgal	Manufacturer-based calculation	0.10
	EUs: Urea, RESI-MIX and Dry Chemical Blower	8,760	hr/yr	4.25E-02	lb/hr	LRAPA Estimate	0.19
	EU: Miscellaneous PR-1	5,452	VMT	0.02	lb/VMT	AP-42 Section 13.2.1	0.07
						Total PM_{10}	**1.0**
$PM_{2.5}$	EU: B-1 Boiler (Firing Natural Gas)	540,229	MMBtu/yr	2.44E-03	lb/MMBtu	ODEQ AQ-EF05	0.7
	EU: B-1 Boiler (Firing Fuel Oil)	2,960	MMBtu/yr	1.16E-02	lb/MMBtu	ODEQ AQ-EF04	0.017
	EU: OX-1 (Firing Natural Gas)	6,570	MMBtu/yr	2.44E-03	lb/MMBtu	ODEQ AQ-EF05	0.008
	EU: CT-1 Cooling Tower	3,048,480	Mgal/yr	6.67E-05	lb/Mgal	Manufacturer-based calculation	0.10
	EUs: Urea, RESI-MIX and Dry Chemical Blower	8,760	hr/yr	4.25E-02	lb/hr	LRAPA Estimate	0.19
	EU: Miscellaneous PR-1	5,452	VMT	0.01	lb/VMT	AP-42 Section 13.2.1	0.02
						Total $PM_{2.5}$	**1.0**
SO_2	EU: B-1 Boiler (Firing Natural Gas)	540,229	MMBtu/yr	1.66E-03	lb/MMBtu	ODEQ AQ-EF05	0.4
	EU: B-1 Boiler (Firing Fuel Oil)	2,960	MMBtu/yr	5.14E-01	lb/MMBtu	ODEQ AQ-EF04	0.761
	EU: OX-1 (Firing Natural Gas)	6,570	MMBtu/yr	1.66E-03	lb/MMBtu	ODEQ AQ-EF05	0.005
						Total SO_2	**1.2**

FACILITY POTENTIAL TO EMIT (PTE) EMISSIONS DETAIL SHEET (CONTINUED)

Pollutant	Emission Unit		Annual Production or Process Rate		Emissions Factor			Emissions
			Rate	Units	Rate	Units	Reference	tons/yr
NO_X	EU: B-1 Boiler (Firing Natural Gas)		540,229	MMBtu/yr	9.75E-02	lb/MMBtu	ODEQ AQ-EF05	26.3
	EU: B-1 Boiler (Firing Fuel Oil)		2,960	MMBtu/yr	1.45E-01	lb/MMBtu	ODEQ AQ-EF04	0.21
	EU: OX-1 (Process gas)		8,760	hr/yr	0.30	lb/hr	ST – Resin Industry-specific	1.31
	EU: OX-1 (Firing Natural Gas)		6,570	MMBtu/yr	0.10	lb/MMBtu	ODEQ AQ-EF05	0.32
							Total NO_X	**28.2**
CO	EU: B-1 Boiler (Firing Natural Gas)		540,229	MMBtu/yr	8.19E-02	lb/MMBtu	ODEQ AQ-EF05	22.1
	EU: B-1 Boiler (Firing Fuel Oil)		2,960	MMBtu/yr	3.62E-02	lb/MMBtu	ODEQ AQ-EF04	0.054
	EU: OX-1 (Process gas)		6,570	MMBtu/yr	2.60	lb/hr	ST – Resin Industry-specific	11.39
	EU: OX-1 (Firing Natural Gas)		8,760	hr/yr	8.19E-02	lb/MMBtu	ODEQ AQ-EF05	0.27
							Total CO	**33.8**
VOC	EU: B-1 Boiler (Firing Natural Gas)		540,229	MMBtu/yr	5.36E-03	lb/MMBtu	ODEQ AQ-EF05	1.448
	EU: B-1 Boiler (Firing Fuel Oil)		2,960	MMBtu/yr	1.45E-03	lb/MMBtu	ODEQ AQ-EF04	0.002
	EU: OX-1 (Process gas)		8,760	hr/yr	0.12	lb/hr	ST - April 2003	0.526
	EU: OX-1 (Firing Natural Gas)		6,570	MMBtu/yr	5.36E-03	lb/MMBtu	ODEQ AQ-EF05	0.02
	EU: LOAD-1 Transfer Racks	UFC HCHO	346,812	gal/yr	8.83E-06	lb/lb product	AP-42 Section 5.2	0.02
		UFC MeOH	346,812	gal/yr	9.03E-06	lb/lb product	AP-42 Section 5.2	0.02
		MeOH Distillate	480,000	gal/yr	1.15E-04	lb/lb product	AP-42 Section 5.2 (98% Vapor Balance Control)	0.006
	EU: CT-1 Cooling Tower		3,048,480	Mgal/yr	7.00E-04	lb/Mgal	AP-42 Table 5.1-3	1.07
	EU: Miscellaneous Emission Units – Waste Resin Pile		8,760	hr/yr	9.66E-04	lb/hr	ST – Resin Industry-specific Spray Dry Tests	0.004
	EU: Miscellaneous Emission Units - TW-1	UF Resin	5.31E-02	lb/truck	4,035	trucks/yr	Ideal Gas Law Estimations	0.11
		PF Resin	5.33E-02	lb/truck	5,483	trucks/yr	Ideal Gas Law Estimations	0.14
		Polyamide Resin	1.48E-01	lb/truck	4,000	trucks/yr	Ideal Gas Law Estimations	0.30
	EU: Aggregate Insignificant – Cleaning and Degreasing		160	gal/yr	7	lb/gal	Assumes 100% volatilization	0.5
	EU: LDAR		TCEQ Air Permit Technical Guidance for Chemical Sources Fugitive Guidance - See Appendix C					5.54
	EU: Miscellaneous Emission Units – Storage Tanks		Variable	gal/yr	Variable	lb/gal throughput	AP-42 Section 7.1- See Appendix D	3.76
	EU: Miscellaneous Emission Units - LOAD-2		Variable	lb resin/yr	Variable	lb/lb resin	AP-42 Section 5.2 – See Appendix E	0.52
							Total VOC	**14.0**

GREENHOUSE GAS PTE AND BASELINE EMISSION DETAIL SHEET

GHG Potential to Emit (PTE)

Emission Unit	Annual Production or Process Rate		Emissions Factors			Emissions
	Rate	Units	Rate	Units	Reference	metric tons CO_2e/yr[1]
EU: B-1 (Boiler) NG-fired	406,320,000	scf/yr[2]	53.06	kg CO_2/MMBtu	Table C-1 to Subpart C of 40 CFR Part 98	59,112
			0.001	kg CH_4/MMBtu	Table C-2 to Subpart C of 40 CFR Part 98	113
			0.0001	kg N_2O/MMBtu	Table C-2 to Subpart C of 40 CFR Part 98	676
EU: B-1 (Boiler) Diesel-fired	21,450	gallons/yr[3]	73.96	kg CO_2/MMBtu	Table C-1 to Subpart C of 40 CFR Part 98	59,112
			0.003	kg CH_4/MMBtu	Table C-2 to Subpart C of 40 CFR Part 98	113
			0.0006	kg N_2O/MMBtu	Table C-2 to Subpart C of 40 CFR Part 98	676
EU: OX-1 RTO NG Combustion	6,403,509	scf/yr	53.06	kg CO_2/MMBtu	Table C-1 to Subpart C of 40 CFR Part 98	4,769
			0.001	kg CH_4/MMBtu	Table C-2 to Subpart C of 40 CFR Part 98	2.2
			0.0001	kg N_2O/MMBtu	Table C-2 to Subpart C of 40 CFR Part 98	2.7
					Total GHG (metric tons)	**22,711**
					Total GHG (short tons)	**25,035**

GHG 2009 Baseline

Emission Unit	Annual Production or Process Rate		Emissions Factors			Emissions
	Rate	Units	Rate	Units	Reference	metric tons CO_2e/yr[1]
EU: B-1 (Boiler) NG-fired	47,640,000	scf/yr	53.06	kg CO_2/MMBtu	Table C-1 to Subpart C of 40 CFR Part 98	2,594
			0.001	kg CH_4/MMBtu	Table C-2 to Subpart C of 40 CFR Part 98	1.2
			0.0001	kg N_2O/MMBtu	Table C-2 to Subpart C of 40 CFR Part 98	1.5
					Total GHG (metric tons)	**2,596**
					Total GHG (short tons)	**2,862**

[1]NOTE: Global Warming Potentials of one (1) for CO_2, 25 for CH_4, and 298 for N_2O were used to convert emissions to CO_2e.
[2]NOTE: Standard cubic feet (scf) of natural gas combusted was converted to MMBtu using the conversion in Table C-1 to Subpart C of 40 CFR Part 98 for natural gas of $1.026x10^{-3}$ MMBtu/scf.
[3]NOTE: Gallons of diesel (gal) was converted to MMBtu using the conversion in Table C-1 to Subpart C of 40 CFR Part 98 for Distillate Oil No. 2 of 0.138 MMBtu/gallon.

EU: LDAR VOC EMISSIONS CALCULATIONS

SOCMI Emission Factors

Component Type	Emission Factor[1] (lb/hr/source)	Control Efficiency (%)
Agitators (LL/GV)	0.0386	75%
Connectors (LL)	0.0005	75%
Connectors (GV)	0.0029	75%
Connectors (HL)	0.00007	30%
PRD (GV)	0.2293	75%
Pumps (LL)	0.0386	75%
Pumps (HL)	0.0161	0%
Valves (LL)	0.0035	75%
Valves (GV)	0.0089	75%
Valves (HL)	0.0007	0%

[1]NOTE: Emission factors and control efficiencies are taken from the TCEQ "Air Permit Technical Guidance for Chemical Sources Fugitive Guidance" (June 2018). Factors based on SOCMI without C2. G/V = Gas/Vapor, LL = Light Liquid, HL = Heavy Liquid

Individual Liquid Streams

Methanol Distillate						
Component Type	Emission Factor[2] (lb/hr/source)	Control Efficiency (%)	Concentration	Component Count	Methanol Emission Rate	
					lb/hr	tpy
Valve (LL)	0.0035	75%	93%	151	1.23E-01	5.38E-01
Connector (LL)	0.0005	75%	93%	511	5.94E-02	2.60E-01
Total VOC Emissions for Methanol Distillate					**0.18**	**0.80**

IPA (800 to K3)						
Component Type	Emission Factor[2] (lb/hr/source)	Control Efficiency (%)	Concentration	Component Count	IPA Emission Rate	
					lb/hr	tpy
Pump (LL)	0.0386	75%	100%	2	1.93E-02	8.45E-02
Valve (LL)	0.0035	75%	100%	44	3.85E-02	1.69E-01
Connector (LL)	0.0005	75%	100%	172	2.15E-02	9.42E-02
Total VOC Emissions for IPA (800 to K3)					**0.08**	**0.35**

IPA (K3 to 608)						
Component Type	Emission Factor[2] (lb/hr/source)	Control Efficiency (%)	Concentration	Component Count	IPA Emission Rate	
					lb/hr	tpy
Valve (LL)	0.0035	75%	100%	9	7.88E-03	3.45E-02
Connector (LL)	0.0005	75%	100%	23	2.88E-03	1.26E-02
Total VOC Emissions for IPA (K3 to 608)					**1.08E-02**	**0.05**

EU: LDAR VOC EMISSIONS CALCULATIONS (CONTINUED)

Formaldehyde						
Component Type	Emission Factor[(2)] (lb/hr/source)	Control Efficiency (%)	Concentration	Component Count	Formaldehyde Emission Rate	
					lb/hr	tpy
Pump (HL)*	0.0161	0%	50%	3	2.42E-02	1.06E-01
Valve (HL)	0.0007	0%	50%	69	2.42E-02	1.06E-01
Connectors (HL)	0.00007	30%	50%	215	5.27E-03	2.31E-02
*Includes one (1) UFC loading pump				**Total VOC Emissions for Formaldehyde**	**1.79E-02**	**0.23**

Phenol						
Component Type	Emission Factor[(2)] (lb/hr/source)	Control Efficiency (%)	Concentration	Component Count	Phenol Emission Rate	
					lb/hr	tpy
Pump (HL)	0.0161	0%	100%	2	3.22E-02	1.41E-01
Valve (HL)	0.0007	0%	100%	56	3.92E-02	1.72E-01
Connector (HL)	0.00007	30%	100%	197	9.65E-03	4.23E-02
				Total VOC Emissions for Phenol	**0.08**	**0.36**

Epichlorohydrin						
Component Type	Emission Factor[(2)] (lb/hr/source)	Control Efficiency (%)	Concentration	Component Count	Epichlorohydrin Emission Rate	
					lb/hr	tpy
Pump (LL)	0.0386	75%	100%	2	1.93E-02	8.45E-02
Valve (LL)	0.0035	75%	100%	102	8.93E-02	3.91E-01
Valve (GV)	0.0089	75%	100%	24	5.34E-02	2.34E-01
Connector (LL)	0.0005	75%	100%	218	2.73E-02	1.19E-01
Connector (GV)	0.0029	75%	100%	89	6.45E-02	2.83E-01
Pump (LL)	0.0386	75%	100%	2	1.93E-02	8.45E-02
				Total VOC Emissions for Epichlorohydrin	**0.25**	**1.11**

Mixed Liquid Stream: Epichlorohydrin

Epichlorohydrin												
Component Type	Emission Factor[(2)] (lb/hr/source)	Control Efficiency (%)	Component Count	Concentration (%)			IPA Emission Rate		Formaldehyde Emission Rate		Phenol emission Rate	
				Phenol	Formaldehyde	Phenol	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Pump (LL)	0.0386	75%	2	10%	50%	40%	2.9E-03	1.3E-02	1.4E-02	6.3E-02	1.2E-02	5.1E-02
Valve (GV)	0.0089	75%	24	10%	50%	40%	1.9E-02	8.2E-02	9.4E-02	4.1E-01	7.5E-02	3.3E-01
Connector (LL)	0.0005	75%	218	10%	50%	40%	2.3E-02	1.0E-01	1.1E-01	5.0E-01	9.2E-02	4.0E-01
Connector (GV)	0.0029	75%	89	10%	50%	40%	1.7E-02	7.4E-02	8.5E-02	3.7E-01	6.8E-02	3.0E-01
						Total VOC Emissions	**0.06**	**0.27**	**0.31**	**1.35**	**0.25**	**1.08**

[2]NOTE: The individual emission factors for Synthetic Organic Chemical Manufacturing Industry (SOCMI) processes for services that are "light liquid" and "heavy liquid". The definition of "light liquid" is based on 40 CFR 60.485(e)(1) and (2). These regulations define "light liquid" as the vapor pressure of one or more of the components is greater than 0.3 kPa at 20°C. Standard reference texts or ASTM D-2879 (incorporated by reference-see §60.17) must be used to determine the vapor pressures. At 20°C, the vapor pressures for formaldehyde, methanol, phenol, and epichlorohydrin are 0.14 kPa, 12.8 kPa, 0.03 kPa, and 1.7 kPa, respectively. Therefore, formaldehyde and phenol are defined as "heavy liquids" and methanol and epichlorohydrin are defined as "light liquids."

EU: MISCELLANEOUS EMISSIONS UNITS – TANKS EMISSIONS AND EMISSION FACTOR DEVELOPMENT

Tank Number	Product	Tank Throughput (gallons/yr)	Number of Tanks in grouping	Total VOC Emissions[1] (lb/yr)	Total VOC Emissions (tpy)	Emission Factor (lb/gallon throughput)
301	DMG Storage Tank	4,000,000	1	6.73	0.003	1.68E-06
302 & 303	Phenol Storage Tank	26,280,000	2	2170.55	1.09	4.13E-05
304, 306	HCHO Storage Tank (MeOH&HCHO)	21,900,000	2	2897.77	1.45	6.62E-05
305	90% Formic Acid Storage Tank	90,000	1	80.38	0.04	8.93E-04
402 & 603	PF/UF Resin Chill Tanks	27,413,647	2	93.47	0.05	1.70E-06
406	PF Resin Storage Tank	2,379,410	20	674.60	0.34	1.42E-05
407	PF Resin Storage Tank					
409	PF Resin Storage Tank					
410	PF Resin Storage Tank					
411	PF Resin Storage Tank					
412	PF Resin Storage Tank					
413	PF Resin Storage Tank					
606 & 607	UF Resin Storage					
609 & 610	UF Resin Storage					
I-3	PF Resin Storage Tank					
I-4	PF Resin Storage Tank					
I-5	PF Resin Storage Tank					
I-6	PF Resin Storage Tank					
SW1 & SW2	PF Resin Storage Tank					
WT-1 & WT-3	PF Resin Storage Tank					
501-506	Polyamide Resin	1,818,182	11	125.66	0.06	6.28E-06
507-509	Polyamide Resin					
706-707	Polyamide Resin Storage					
WT-4	Polyamide Resin Storage					
602	Methanol Distillate Storage	480,000	1	656.84	0.33	1.37E-03
604	Process Water Storage Tank	1,000,000	1	42.76	0.02	4.28E-05
608	Resin w/ Flammable Resin	650,000	1	85.39	0.04	1.31E-04
701	DETA Storage Tank	3,000,000	1	6.64	0.003	2.21E-06
703	Methanol Distillate Tank	480,000	1	309.86	0.15	6.46E-04
800	IPA Storage Tank	363,000	1	146.99	0.07	4.05E-04
801	EPI Storage Tank	2,500,000	1	68.87	0.03	2.75E-05
802	EPI Storage Tank	2,500,000	1	45.59	0.02	1.82E-05
AQ1	60% Formic Acid Storage Tank	200,000	1	38.14	0.02	1.91E-04
DF-1	Diesel Fuel Storage Tank	3,914,704	1	5.08	0.003	1.30E-06
900	WSR Stormwater Storage	5,000,000	1	57.11	0.03	1.14E-05
Total VOC for EU: Miscellaneous Emission Unit - Storage Tanks					**3.76**	--

[1]NOTE: VOC emissions calculated using the procedures detailed in AP-42 Section 7.1.

EU: LOAD-2 EMISSIONS CALCULATIONS

Parameter	UF Resin Truck Loading		PF Resin Truck Loading			Methanol Solvated PF Resin Truck Loading			Polyamide Resin Railcar/Truck Loading	0313G Resin w/IPA Truck Loading		
	HCHO	Methanol	HCHO	Methanol	Phenol	HCHO	Methanol	Phenol	1,2-dichloro-2-propanol	HCHO	Phenol	IPA
S, Saturation Factor =	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
Material Temperature (°F) =	55	55	55	55	55	77	77	77	55	72	72	72
Material Temperature (°R) =	515	515	515	515	515	537	537	537	515	532	532	532
Material Temperature (°C) =	12.8	12.8	12.8	12.8	12.8	25.0	25.0	25.0	12.8	22.2	22.2	22.2
Substance Concentration (wt%) =	1.0%	1.0%	1.0%	1.0%	0.6%	1.0%	4.9%	0.7%	4.0%	1.0%	18.5%	34.2%
Substance Vapor Pressure (psia) =	0.0015	0.0126	0.0015	0.0126	0.00001	0.0037	0.1204	0.0001	0.0021	0.0029	0.0010	0.1382
Molecular Weight =	30.0	32.0	30.0	32.0	94.1	30.0	32.0	94.1	129.0	30.0	94.1	60.1
L_L, Loading Loss (lb/mgal) =	1.58E-03	1.41E-02	1.58E-03	1.41E-02	3.30E-05	3.73E-03	1.30E-01	1.58E-04	9.50E-03	2.95E-03	3.20E-03	2.82E-01
Filling Rate per Loading Rack (gal/hr) =	21,000	21,000	14,000	14,000	14,000	10,000	10,000	10,000	21,000	12,000	12,000	12,000
Number of Loading Racks =	2	2	3	3	3	1	1	1	2	1	1	1
Emission Rate (lb/hr) =	0.07	0.59	0.07	0.59	1.39E-03	0.04	1.30	0.00	0.40	0.04	0.04	3.38
Annual Filling Rate (gal/yr) =	20,174,545	20,174,545	27,413,647	27,413,647	27,413,647	100,000	100,000	100,000	20,000,000	327,273	327,273	327,273
Product Density (lb/gal)	10	10	10	10	10	10	10	10	10	10	10	10
Emission Rate (tpy)[1] =	**0.02**	**0.14**	**0.02**	**0.19**	**4.52E-04**	**1.87E-04**	**0.01**	**7.91E-06**	**0.10**	**4.83E-04**	**5.23E-04**	**0.05**
Emission Factor (lb/lb resin) =	1.58E-07	1.41E-06	1.58E-07	1.41E-06	3.30E-09	3.73E-07	1.30E-05	1.58E-08	9.50E-07	2.95E-07	3.20E-07	2.82E-05
Combined Emission Factor (lb/lb resin)	1.57E-06		1.58E-06			1.34E-05			9.50E-07	2.88E-05		

[1]NOTE: Calculations are performed using Equation 1 of AP-42 Section 5.2, Transportation and Marketing of Petroleum Liquids (June 2008):

$$L_L = 12.46 * SPM / T$$

where:
L_L = Loading Loss (lb/Mgal loaded)
S = Saturation Factor
P = True Vapor Pressure of Liquid Loaded (psia)
M = Molecular Weight of Vapors (lb/lb-mol)
T = Temperature of Bulk Liquid Loaded (°R)