State of Oregon Department of Environmental Quality

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
OREGON TITLE V OPERATING PERMIT
REVIEW REPORT
for Entek International, LLC

Western Region
4026 Fairview Industrial Drive SE
Salem, OR 97302

Source Information:

SIC	3081
NAICS	326113

Source Categories (Part and code)	

Compliance and Emissions Monitoring Requirements:

Unassigned emissions	
Emission credits	
Compliance schedule	
Source test [date(s)]	

COMS	
CEMS	X
PEMS	
Ambient monitoring	

Reporting Requirements

Annual report (due date)	March 15
Emission fee report (due date)	March 15
SACC (due date)	March 15, July 30
Quarterly report (due dates)	

Monthly report (due dates)	
Excess emissions report	X
Other reports (type)	

Air Programs

NSPS (list subparts)	A, Dc, JJJJ
NESHAP (list subparts)	A, ZZZZ, DDDDD, EEEE, JJJJ
CAM	X
Regional Haze (RH)	
Synthetic Minor (SM)	
Part 68 Risk Management	

CFC	
RACT	
TACT	
Title V	X
ACDP (SIP)	
Major HAP source	X
Federal major source	

NSR	
PSD	

Acid Rain	

TABLE OF CONTENTS

LIST OF ABBREVIATIONS USED IN THIS REVIEW REPORT

AQMA	Air Quality Management Area
ASTM	American Society of Testing and Materials
BDT	bone dry ton
CEMS	continuous emissions monitoring system
CFR	Code of Federal Regulations
CH_4	methane (greenhouse gas)
CMS	continuous monitoring system
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
COMS	continuous opacity monitoring system
DEQ	Oregon Department of Environmental Quality
dscf	dry standard cubic feet
EF	emission factor
EPA	United State Environmental Protection Agency
EU	emissions unit
FCAA	Federal Clean Air Act
GHG	greenhouse gas
gr/dscf	grains per dry standard cubic feet
HAP	hazardous air pollutant
ID	identification code
I&M	inspection and maintenance
MB	material balance
Mlb	1000 pounds
MM	million
N_2O	nitrous oxide (greenhouse gas)
NA	not applicable
NESHAP	National Emission Standard for Hazardous Air Pollutants
NO_x	oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
O_2	oxygen
OAR	Oregon Administrative Rules
ORS	Oregon Revised Statutes
O&M	operation and maintenance
Pb	lead
PCD	pollution control device
PEMS	predictive emissions monitoring system
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
PSD	Prevention of Significant Deterioration
PSEL	Plant Site Emission Limit
SO_2	sulfur dioxide
ST	source test
VE	visible emissions
VMT	vehicle mile traveled
VOC	volatile organic compound

INTRODUCTION

1. The proposed permit is a renewal of an existing Oregon Title V Operating Permit, which was issued on 2/22/2011, and which was originally scheduled to expire on 11/1/2015. The facility submitted a timely and complete renewal application on 10/31/2014. Therefore, the current permit remains in effect until the renewal permit is issued.

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 reqnirement 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.

3. During the permit term the permit was modified as follows:

   3.a. Notice of Approval Application Type 2, (NOA) 26971 was approved on 11/5/2012 – equipment design updates.

   3.b. Notice of Approval Application Type 1, (NOA) 28391 was approved on 10/9/2015 – upgrade to emission controls FB-7, FB-11 and BH-4.

   3.c. Notice of Approval Application Type 1, (NOA) 29141 was approved on 7/9/2017 – addition of 3 new silos.

4. No emission increases are proposed in this permit renewal. Proposed changes in this permitting action include the following:

   4.a. addition of updated DEQ rules adopted in April of 2015

   4.b. Boiler EU2.2 (small boiler) has been decommissioned and is removed from the permit. Five additional production lines 6A and 14-17 may be installed in the future.

   4.c. addition of baghouses: BH-21, BH-22, BH-23, BH-24, BH-25, BH-26, and BH-27, and fiber filters: FB-12 FB-13, B-14, FB-15, FB-16, and FB-17.

   4.d. Addition of Emission Unit EU-5 PM Controls. These units were removed from aggregate insignificant and are proposed as a separate emission unit identified as follows:

PM Controls	EU-5	Baghouse Baghouse Fiber Bed	BH-22, BH-23, FB-14

   4.e. After issuance of the previous permit it was determined that 40 CFR Part 63, Subpart EEEE should be identified as an applicable requirement and is being added in this permitting action. However the only requirement is that the permittee retain documentation that the trichloroethylene storage tank is below 5,000 gallons, and that the equipment used to load organic liquids into or out of vehicles or containers (as broadly interpreted as a "transfer racks") are low throughput. The capacity of the TCE storage tank is 4,500 gallons. The transfer racks are low throughput and emission limits and operating requirements are not applicable.

   4.f. addition of major source Boiler MACT requirements

4.g. addition of RICE NESHAP/NSPS requirements for the natural gas fired emergency generator.

4.h. production line nomenclature and typographic corrections

4.i. updating the initial excess emission reporting requirement from within one hour of occurrence to 9 am the following business day.

PERMITTEE IDENTIFICATION

5. Entek International LLC operates a microporous plastic membrane manufacturing facility located in Lebanon, Oregon. The facility began operations in February, 1987.

FACILITY DESCRIPTION

6. Lead acid battery separator material is manufactured using a mix of oil and product specific additives such as polyethylene and silica. Lithium ion battery separator material is manufactured using the same method minus the use of silica. The mixture is extruded at an elevated temperature into desired shapes. The oil is extracted from the microporous plastic product using a trichloroethylene (TCE) bath, residual TCE is removed by drying. The product is slit and wound onto spools for shipment. The thickness, width, and additives used are determined by customer specifications.

There are 11 active production lines (1, 2, 3, 4, 5A, 7, 8, 9, 10, 12, and 13. Up to five new production lines (6A, 14-17) may be installed during the permit period. The construction and operation of these new lines has been reviewed and approved by DEQ. All of the required monitoring, testing, and recordkeeping requirements have been incorporated into the proposed permit.

At this time, the complete production area is generally kept closed from the external environment and is maintained at negative pressure. The carbon bed adsorption unit captures TCE from the plant exhaust air which is delivered to the control system via the Solvent Laden Air (SLA) duct. The source conducts monthly leak checks of equipment in accordance with a DEQ approved leak detection plan. In addition, the source actively pursues a fugitive emission reductions through a site specific fugitive emissions reductions program.

Dry raw materials and process oil are delivered in bulk via rail cars or trucks. Oil and solvent (TCE based) are delivered in bulk via tanker trucks or barrels. The product is shipped to customers via truck. The raw materials are mixed in the mix stand areas. Air from these areas is pulled into one of several baghouses where particulate matter is removed. Maintenance staff routinely checks each unit for effectiveness in accordance with a standard checklist and OEM recommendations.

The manufacturing process for each of the production lines is similar. Raw ingredients are transferred to the mix-stands from bulk storage. Dry raw materials and some of the oil are mixed together at the mix stands. The mixture is transferred to a twin screw extruder via conveyors and pipes. The remainder of the oil is added to the mixture at the extruder. The material is heated, mixed by the extruder, and extruded as a plastic substance. This material flows through the screen changer and die head shaping the product according to customer specifications. The oil filled plastic product is then run through multiple TCE baths in an extractor to remove the majority of the oil. The oil enriched TCE is run through a distillation unit to separate TCE from oil. The separated TCE is returned to the extractor and the oil is sent to the central oil air stripping system to remove residual TCE. The TCE removed from the oil is entrained in an air stream that is vented to CB-1 via the SLA (Solvent Laden Air) duct. The cleaned oil is reinjected into the dry mix and used at the extruder. The product moves from the extractor into the dryer where the majority of the remaining TCE is removed. TCE laden air from the drying section is transported to the SLA duct. Some products go through a pin-hole detector which marks holes with a paint mixture. The winders trim and

wind the product into rolls which are boxed for shipping. Trimmings are reground, mixed with oil, pelletized, and recycled back into the production process.

Two natural gas fired boilers (each of which has oil backup) provide steam for the production process and for the carbon bed adsorption system. Both are in operation, and use fuel oil as a backup to natural gas. Boiler 2 - EU-2.2 has been permanently decommissioned and is removed from the permit in this renewal.

Entek also operates a CTS/GM (Cut-to-size, Glass Mat) Duraloc line (EU-4). The process consists of adhering a Fiber Glass Mat to the finished microporous plastic membrane, drying, and packaging for shipment.

EMISSIONS UNIT AND POLLUTION CONTROL DEVICE IDENTIFICATION

7. The emissions units and control devices at this facility are as follows:

Emission Unit: EU-1
Microporous Plastic Production (VOC only)

Lead-Acid Microporous Production Lines: The mix from the mix stands is extruded at elevated temperatures and formed into a continuous patterned black sheet by the calendar. The black sheet is run through a TCE bath in the extractor which removes the majority of the oil from the sheet. The sheet then passes through the dryer to evaporate the remaining TCE from the sheet. The sheet then passes through an oven for a final curing of the film. The sheet is then slit, wound onto rolls, and boxed for shipping to customers.

Lithium Microporous Production Lines: The mix from the Lithium mix system is extruded at elevated temperatures and formed into a continuous sheet by a die. The sheet is run through a TCE bath in an extractor where more than 99% of the oil is removed from the sheet. The remaining TCE is then evaporated from the sheet in an oven. The sheet is then slit, wound onto rolls, and boxed for shipment.

Device / Activity	Description	PCD ID
Line 1 -- Installed 1991 -- Upgraded Aug. 1995	▪ Pb-Acid Battery Separator ▪ 76 board feet/hour ▪ 203 board feet/hour	CB-2 then routed to CB-1
Line 2 -- Installed 1988 -- Upgraded July 1995	▪ Pb-Acid Battery Separator ▪ 76 board feet/hour 203 board feet/hour	CB-2 then routed to CB-1
Line 3 -- Installed 1987 -- Upgraded Nov. 1994	▪ Pb-Acid Battery Separator ▪ 76 board feet hour 203 board feet/hour	CB-2 then routed to CB-1
Line 4 -- Installed 1988 -- Upgraded Dec. 1994	▪ Pb-Acid Battery Separator ▪ 76 board feet/hour ▪ 203 board feet/hour	CB-1
Line 5A Installed 2018	▪ Pb-Acid Battery Separator ▪ 242 board feet/hour	CB-2 then routed to CB-1
Line 6A -- Future	▪ Pb-Acid Battery Separator ▪ 242 board feet/hour	CB-1

Device / Activity	Description	PCD ID
Line 7 -- Installed Sep. 1992 -- Upgraded Aug. 1999	▪ Pb-Acid Battery Separator ▪ 76 board feet/hour ▪ 247 board feet/hour	CB-1
Line 8 -- Installed Sep. 2004	▪ Pb-Acid Battery Separator ▪ 515 board feet/hour	CB-1
Line 8 Air Stripper --Installed Sep. 2004	▪ 29,000 tons/year process oil	CB-1
Line 9 -- Installed 1993 (TCE extractor upgraded June 2000) Line 9A (Future L-9 replacement)	▪ Pb-Acid Battery Separator ▪ 185 Board feet/hour ▪ No change in production capacity ▪ 153 board feet/hour	CB-1
Line 10 --Installed June 1994 Line 10 A (Future L-10 replacement)	▪ Pb-Acid Battery Separator ▪ 185 board feet/hour 153 board feet/hour	CB-1
Line 12 --Installed Sep. 2005	▪ Lithium Battery Separator ▪ 64 board feet/hour	CB-1
Line 13 Installed 2018.	▪ Lithium Battery Separator ▪ 97 board feet/hour	CB-1
Line 14 (Future)	▪ Lithium separator or other microporous material products	CB-1
Line 15 (Future)	▪ Lithium separator or other microporous material products ▪ 97 board feet/hour	CB-1
Line 16 (Future)	▪ Lithium separator or other microporous material products ▪ 97 board feet/hour	CB-1
Line 17 (future)	▪ Pb-Acid Better Separator ▪ 305 board feet/hour	CB-1
Air Stripper #1	▪ 50,000 tons/year process oil	CB-1
Air Stripper #2	▪ 50,000 tons/year process oil	CB-1
Air Stripper #3	▪ 29,000 tons/year process oil	CB-1
Water Air Stripper #1	▪ 109,000 tons/year process water	CB-1
Miscellaneous Process Tanks (Breathing/working losses)	▪ Various sizes	CB-1
Buildings #1 and #11 area VOC emissions		Enclosed, CB-1

Device / Activity	Description	PCD ID
Fugitive VOC emissions associated with microporous production activities		None

Emissions Unit: EU-2.1 - Boiler – B-1
(PM, PM_{10}, $PM_{2.5}$,NO_x,SO_2, CO, and VOC)

Device / Activity	Defining Characteristics	PCD ID
Large Boiler (B-1) This boiler is the back-up source of steam for the process lines and the carbon bed desorption cycles.	▪ Cleaver Brooks ▪ Water tube boiler ▪ Mfg. 1991 ▪ Installed 1994 ▪ Model D-76 ▪ #W-3631 ▪ natural gas/#2 oil ▪ 64.772 MMBtu/hour ▪ 350 psi ▪ 435°F ▪ N.G. Air/Fuel = 87.55%. / 12.45% ▪ ULSD back up fuel	None

Emissions Unit: EU-2.3 – Boiler - B-3
(PM, PM_{10}, $PM_{2.5}$, NO_x,SO_2, CO, and VOC)

Device / Activity	Description	PCD ID
Boiler (B-3)	▪ Cleaver Brooks ▪ Water tube boiler ▪ Nebraska D-style ▪ Installed 2014 ▪ Natural gas fired/#2 oil ▪ 96.6 MM Btu/hour ▪ 150 psig ▪ 366°F ▪ Low NOx Burner ▪ ULSD backup fuel	None

Emissions Unit: EU-3
VOC Misc.
(For VOC PSEL only)

Device / Activity	Description	PCD ID
Line 1 Defect Marking System --Installed 1991 --Upgraded 1995	After leaving the oven, the grey sheet is tested for pinholes. If a pinhole is found it is highlighted with a white spray marker. The spray contains isopropyl alcohol. The defect marking systems are only used on the Pb-Acid Battery Separator production lines.	VOC emissions from the defect marking systems are released inside of Building #1 which is vented to CB-1. However, there is no information on the amount of VOC that may be captured by the carbon bed system. Thus, 100 percent pass through is assumed for VOC emissions calculations for this emissions unit.
Line 2 Defect Marking System --Installed 1991 --Upgraded 1995	After leaving the oven, the grey sheet is tested for pinholes. If a pinhole is found it is highlighted with a white spray marker. The spray contains isopropyl alcohol. The defect marking systems are only used on the Pb-Acid Battery Separator production lines.	VOC emissions from the defect marking systems are released inside of Building #1 which is vented to CB-1. However, there is no information on the amount of VOC that may be captured by the carbon bed system. Thus, 100 percent pass through is assumed for VOC emissions calculations for this emissions unit.
Line 3 Defect Marking System --Installed 1991 --Upgraded 1995	After leaving the oven, the grey sheet is tested for pinholes. If a pinhole is found it is highlighted with a white spray marker. The spray contains isopropyl alcohol. The defect marking systems are only used on the Pb-Acid Battery Separator production lines.	VOC emissions from the defect marking systems are released inside of Building #1 which is vented to CB-1. However, there is no information on the amount of VOC that may be captured by the carbon bed system. Thus, 100 percent pass through is assumed for VOC emissions calculations for this emissions unit.
Line 4 Defect Marking System --Installed 1991 --Upgraded 1995	After leaving the oven, the grey sheet is tested for pinholes. If a pinhole is found it is highlighted with a white spray marker. The spray contains isopropyl alcohol. The defect marking systems are only used on the Pb-Acid Battery Separator production lines.	VOC emissions from the defect marking systems are released inside of Building #1 which is vented to CB-1. However, there is no information on the amount of VOC that may be captured by the carbon bed system. Thus, 100 percent pass through is assumed for VOC emissions calculations for this emissions unit.
Line 5A Defect Marking System Installed 2018	After leaving the oven, the grey sheet is tested for pinholes. If a pinhole is found it is highlighted with a white spray marker. The spray contains Tertiary Butyl Acetate and isopropyl alcohol. The defect marking systems are	VOC emissions from the defect marking systems are released inside of Building #1 which is vented to CB-1. However, there is no information on the amount of VOC that may be captured by the carbon bed system. Thus, 100 percent pass through is assumed

Device / Activity	Description	PCD ID
	only used on the Pb-Acid Battery Separator production lines.	for VOC emissions calculations for this emissions unit.
Line 6A Defect Marking System --Future	After leaving the oven, the grey sheet is tested for pinholes. If a pinhole is found it is highlighted with a white spray marker. The spray contains Tertiary Butyl Acetate and isopropyl alcohol. The defect marking systems are only used on the Pb-Acid Battery Separator production lines.	VOC emissions from the defect marking systems are released inside of Building #1 which is vented to CB-1. However, there is no information on the amount of VOC that may be captured by the carbon bed system. Thus, 100 percent pass through is assumed for VOC emissions calculations for this emissions unit.
Line 7 Defect Marking System --Installed 1992 --Upgraded 1999	After leaving the oven, the grey sheet is tested for pinholes. If a pinhole is found it is highlighted with a white spray marker. The spray contains isopropyl alcohol. The defect marking systems are only used on the Pb-Acid Battery Separator production lines.	VOC emissions from the defect marking systems are released inside of Building #1 which is vented to CB-1. However, there is no information on the amount of VOC that may be captured by the carbon bed system. Thus, 100 percent pass through is assumed for VOC emissions calculations for this emissions unit.
Line 8 Defect Marking System --Installed Oct. 2004	After leaving the oven, the grey sheet is tested for pinholes. If a pinhole is found it is highlighted with a white spray marker. The spray contains Tertiary Butyl Acetate and isopropyl alcohol. The defect marking systems are only used on the Pb-Acid Battery Separator production lines.	VOC emissions from the defect marking systems are released inside of Building #1 which is vented to CB-1. However, there is no information on the amount of VOC that may be captured by the carbon bed system. Thus, 100 percent pass through is assumed for VOC emissions calculations for this emissions unit.
Line 9 Defect Marking System --Installed 1993 --Upgraded 2000 --Line 9A (Future L-9 replacement)	After leaving the oven, the grey sheet is tested for pinholes. If a pinhole is found it is highlighted with a white spray marker. The spray contains isopropyl alcohol. The defect marking systems are only used on the Pb-Acid Battery Separator production lines.	VOC emissions from the defect marking systems are released inside of Building #1 which is vented to CB-1. However, there is no information on the amount of VOC that may be captured by the carbon bed system. Thus, 100 percent pass through is assumed for VOC emissions calculations for this emissions unit.
Line 10 Defect Marking System -- Installed June 1994 Line 10A (Future L-10 replacement)	After leaving the oven, the grey sheet is tested for pinholes. If a pinhole is found it is highlighted with a white spray marker. The spray contains isopropyl alcohol. The defect marking systems are	VOC emissions from the defect marking systems are released inside of Building #1 which is vented to CB-1. However, there is no information on the amount of VOC that may be captured by the carbon bed system. Thus, 100

Device / Activity	Description	PCD ID
	only used on the Pb-Acid Battery Separator production lines.	percent pass through is assumed for VOC emissions calculations for this emissions unit.
Line 17 Defect Marking System --Future	After leaving the oven, the grey sheet is tested for pinholes. If a pinhole is found it is highlighted with a white spray marker. The spray contains Tertiary Butyl Acetate and isopropyl. The defect marking systems are only used on the Pb-Acid Battery Separator production lines.	VOC emissions from the defect marking systems are released inside of Building #1 which is vented to CB-1. However, there is no information on the amount of VOC that may be captured by the carbon bed system. Thus, 100 percent pass through is assumed for VOC emissions calculations for this emissions unit.

Emission Unit: EU-4

Glass Mat Lamination

Device / Activity	Description	PCD ID
CTS/Glass Mat Line (Duraloc)	CTS/GM (Cut-to-size, Glass Mat) line. The process consist of adhering a Fiber Glass Mat to the finished microporous plastic membrane material, drying, and packaging for shipment	BH-4 Vented to atmosphere Captured dust is collected, bagged, and disposed of through municipal waste handling.

Emission Unit: EU-5

PM Controls

Device / Activity	Description	PCD ID
BH-22 (future)	Line 6A Mix Stand Baghouse	Future
BH-23 Installed 2018	New Silica System	Vented to atmosphere Captured dust is collected, bagged, and disposed of through municipal waste handling. 0" to 6" WC
FB-14 (future)	Future Line 6A oil smoke collection	Future – Vent to the atmosphere

Emissions Unit: AI

Aggregate Insignificant Activities

Device / Activity	Description	PCD ID
Pollutant: $PM/PM_{10}/PM_{2.5}$:		
Smoke Collection Activities		FB-3, FB-5A, FB-6, FB-8, FB-9, FB-10, and FB-11, FB-11A, (FB-12, FB-13, FB-15, FB-16, FB-17 are future units) (FB-1, FB-2, and FB-4 have been decommissioned)
Oil Cleaning Activities		FB-7A

Mixing Activities		BH-1, BH-2, BH-6, BH-15, BH-16, BH-20, (BH-21, BH-24, BH-25, BH-27 are future)
Grey-Trim Collection System		BH-3
Cut-To-Size Fiberglass Collection		BH-4
Bulk off-loading of Silica & Polyethylene, materials handling		BH-7, BH-18, and (BH-26 future).
Bulk Unloading Activities		None
Pyrolysis Oven		None
Pollutant: VOC		
EU-4	Glass mat lamination	BH-4
Misc. VOC	Box stenciling ink	None
	Coating Line	None

Control Devices [CAM applicability is listed in design parameters for each]

Additionally, Appendix 1 Contains a CAM analysis table which includes a detailed description on CAM applicability. There are no emission units identified that are subject to CAM, however EU-1 is required to be monitored continuously with a CEMS system to demonstrate compliance with the state only enforceable limit established in the 1991 ACDP Permit issuance.

PCD ID	Description	Design Parameters	Comments
CB-1	Carbon bed adsorption system and distillation unit controlling VOC and VHAP emissions from the microporous plastic production processes and room air. Beds 1, 2, & 3 installed 1987 Bed 4 installed 1994 Beds 1 – 4 were with replaced in 2011. Beds 5 & 6 --Future	▪ Carbon Beds -Entek International ▪ Distillation system – Vara International ▪ 99.9+% VOC control ▪ 75,000 acfm (100,000 acfm after addition of beds 5 and 6) ▪ 120 ft. stack height ▪ 70 in. stack diameter ▪ An Alan –Bradley PLC process computer with ICOM software running on a PC continuously monitors and records operational parameters. The complete CB-1 system is automated and controlled by the PLC. This system can also be run in manual mode. Thirty-two parameters are	Solvent (TCE) laden air is collected from the plant by the SLA (solvent laden air) duct system which terminates into the carbon bed inlet valves. The motive forces for the SLA collection system is one 500hp blower, and one 100hp blower that only runs during the drying cycle of the off-line adsorber. At any one time, three of the four carbon beds are actively adsorbing TCE, while the fourth bed is being steamed to recover the adsorbed TCE. The solvent vapor and steam from the steaming bed is ducted to the CB-1 condensers. The condensed solvent and water goes to the decanter where they are separated

		monitored and recorded. The monitored data is updated every second and recorded once every two minutes and logged to a SQL database. ▪ CAM is not applicable because emissions are continuously monitored with a TCE continuous emission monitoring system (CEMS) and the applicable emission limit is a TCE state limit of 10 lb/hr [40 CFR 64.2(b)(1)(iv)]	one, from the other. The recovered TCE is collected in the solvent transfer tank, then transferred by pipe to the solvent storage tank. The water from the decanter goes to the layer tank and then through the VARA distillation unit to separate any remaining TCE. The separated TCE goes to the Solvent transfer tank and the water goes to the Process water tank (recycled). This system is designed so that any one of the four carbon beds can be dropped out of the system for maintenance. If a bed is out of service, two units handle the load while the third is being desorbed.
CB-2	3-Bed Carbon bed adsorption system controlling VOC and VHAP emission from the L-5A microporous plastic production processes and room air. Installed 9/1/12 Addition of 4th carbon bed submitted as an off-permit modification as of 3/2/16.	▪ MEGTEC Systems, Inc. ▪ Model #MEGTEC Carbon Bed System with an ENTEK designed 4th carbon bed ▪ 99% VOC removal ▪ 6018 acfm vented back to the SLA ducting and CB-1 ▪ Not vented to atmosphere so not subject to CAM	4-Bed Carbon Adsorption System to remove and recover trichloroethylene (TCE) from Line 5A oven. The oven exhaust stream first goes through a pre-heater and then brought to the inlet of the system. In the system, the solvent is adsorbed onto activated carbon and treated air is exhausted to CB-1. Steam regeneration of a saturated adsorber produces a water/solvent (TCE) mixture that separates into a water layer and a solvent layer in a decanter. The solvent layer is collected for recycle and reuse. The water layer containing dissolved TCE is further treated by the ancillary system distillation process.
BH-1	North Baghouse	▪ Wheelabrator #87 ▪ 99.9+% PM control	Vented to atmosphere.

	Installed 1987. Controls dust from Mix Stands 1, 2, & 3, BH-8, BH-9, BH-10, BH-12, BH-13, BH-14	▪ 0.01 grains/SCF ▪ 17,000 acfm ▪ 8.43:1 air to cloth ratio ▪ 4 - 5 in. water pressure drop ▪ 67-foot stack height ▪ 29 in. stack diameter ▪ Reverse air pulse ▪ cleaning every 45 sec. ▪ Precontrol PTE of 47.87 tpy so not subject to CAM ▪	Captured dust is collected, bagged, and either recycled back into the process or disposed of through municipal waste handling.
BH-2	South Baghouse. Installed 1992. Controls dust from Mix Stands 4, 5, and 6, BH-5, BH-11	▪ Wheelabrator ▪ Size 57, Model 36 ▪ 99.9+% PM control ▪ 0.01 grains/SCF ▪ 11,000 acfm ▪ 8.73:1 air to cloth ratio ▪ 4 - 5 in. water pressure drop ▪ 52-foot stack height ▪ 29 in. stack diameter ▪ Reverse air pulse cleaning every 45 sec. ▪ Precontrol PTE of 76.28 tpy so not subject to CAM	Vented to atmosphere. Captured dust is collected, bagged, and either recycled back into the process or disposed of through municipal waste handling.
BH-3	Grey-Trim Baghouse Installed 1999. Controls dust from the Grey Trim Grinder and the Rapid Grinder	▪ Wheelabrator ▪ 36" dust collector ▪ 99.9+% PM control ▪ 0.01 grains/SCF ▪ 17,000 acfm ▪ 8.43:1 air to cloth ratio ▪ 4 - 5 in. water pressure drop ▪ 24 ft 8 in. stack height ▪ 18 in. stack diameter ▪ Reverse air pulse cleaning every 24 sec. ▪ Not vented to atmosphere so not subject to CAM	Vented inside of Building #1 with future option to be vented directly to CB-1. Captured dust is collected, bagged, and either recycled back into the process or disposed of through municipal waste handling.

BH-4 (decommissioned 2014) BH-4 Replacement	Cut-To-Size / Fiberglass Baghouse. Installed 1999. Controls dust from Cut-To-Size / Glass–mat line Installed 2014	▪ Fabric Filters Air Systems ▪ Model #56-10-BR ▪ 99.9+% PM control ▪ 0.01 grains/SCF ▪ 3,500 acfm ▪ 5.2:1 air to cloth ratio ▪ 4-5 in. water pressure drop ▪ 19 ft 9 in. stack height ▪ 17.5 in. stack diameter Reverse air pulse cleaning every 45 sec. ▪ CSL Industrial System ▪ Model #2-SKR-S Filter Collector ▪ 3,500 acfm ▪ 5.2:1air to cloth ratio ▪ 99.95% PM control ▪ 2 - 6 inches water pressure drop ▪ Not vented to atmosphere so not subject to CAM	Vented inside of Building #1. Captured dust is collected, bagged, and disposed of through municipal waste handling. Vented inside Building #1
BH-5	South Polymer Baghouse. Installed 2000. Controls dust from Polymer Holding Bins 4, 5, and 6	▪ Fabric Filters Air Systems ▪ Donaldson-Torit ▪ Model #36 PJD8 ▪ 99.9+% PM control ▪ 0.005 grains/SCF ▪ 400 acfm ▪ 2.78:1 air to cloth ratio ▪ 2 - 6 in. water pressure drop ▪ Air pulse cleaning every 10 sec.	Vented to BH-2. Captured dust is collected and reused in the mixing process.

		▪ Not vented to atmosphere so not subject to CAM	
BH-6	Teklon Baghouse Installed 2004. Controls dust from the Teklon Mix Room	▪ Adaptive Engineering & Fabrication ▪ Model # DC-49-8 ▪ PM control: 99.5% at 1 micron ▪ 2,800 acfm ▪ 12:1 air to cloth ratio ▪ 18 in. water pressure drop ▪ Air pulse cleaning every 10 sec. ▪ Not vented to atmosphere so not subject to CAM	Vented inside of Building #11. Captured dust is collected, bagged, and either recycled back into the process or disposed of through municipal waste handling
BH-7	Polymer Silo Baghouse Installed May 1990 Controls dust from the Polymer Silo.	▪ Donaldson-Torit ▪ Model# 9PJD-8 ▪ PM Control: 99.99% (0.01 grains/dscf outlet loading) ▪ 500 scfm ▪ 15:1 air to cloth ratio ▪ 17 in. water pressure drop ▪ Air pulse cleaning every 10 sec. ▪ Precontrol PTE of 95.1 tpy so not subject to CAM	BH-7 is vented to the atmosphere. Dust collected by the baghouse is returned to the silo.
BH-8	Polymer Day Bin Baghouse Installed May 1991 Controls dust from the Polymer Day Bin.	▪ Donaldson-Torit ▪ Model# 25 PJD 6 ▪ PM control: 99.9% at 1 micron ▪ 400 scfm ▪ 15: 1 air to cloth ratio ▪ 18 in. water pressure drop ▪ Air pulse cleaning every 10 sec. ▪ Not vented to atmosphere so not subject to CAM	BH-8 is vented to BH-1 Dust collected by the baghouse is returned to the day bin.
BH-9	Silica #1 Silo Baghouse	▪ Donaldson-Torit ▪ Model# 16 PJD	BH-9 is vented to BH-1

	Installed May 1991 Controls dust from the Silica Silo #1.	▪ PM control: 99.9% at 1 micron ▪ 410 scfm ▪ 15: 1 air to cloth ratio ▪ 18 in. water pressure drop ▪ Air pulse cleaning every 10 sec. ▪ Not vented to atmosphere so not subject to CAM	Dust collected by the baghouse is returned to the silo.
BH-10	Silica #2 Silo Baghouse Installed May 1991 Controls dust from the Silica Silo #2.	▪ Donaldson-Torit ▪ Model# 36 HPH ▪ PM control: 99.9% at 1 micron ▪ 1385 scfm ▪ 15: 1 air to cloth ratio ▪ 18 in. water pressure drop ▪ Air pulse cleaning every 10 sec. ▪ Not vented to atmosphere so not subject to CAM	BH-10 is vented to BH-1 Dust collected by the baghouse is returned to the silo.
BH-11	South Silica Day Bin Baghouse Installed May 1991 Controls dust emissions from the South Silica Day Bin.	▪ Donaldson Torit ▪ Model # 36 HPH ▪ 99.9% control at one micron ▪ 1,385 scfm ▪ 15:1 air-to-cloth ratio ▪ 18" pressure drop ▪ Air pulse cleaning every 10 sec. ▪ Not vented to atmosphere so not subject to CAM	BH-11 is vented to BH-2. Captured dust is returned to the bin.
BH-12	3rd Silica Silo Baghouse Installed 2006 Controls dust emissions from the 3rd Silica Silo.	▪ Donaldson Torit ▪ Model # TBV-2 ▪ 99.9% control at .5 micron ▪ 533 acfm ▪ 2:1 air-to-filter ratio ▪ 6" W.C. ▪ (2) ultra web II filter units. ▪ Continuous reverse Air pulse cleaning.	BH-12 is vented to BH-1. Captured dust is returned to the silo.

		▪ 15 sec. (off time) ▪ .125 sec. (on time) ▪ Not vented to atmosphere so not subject to CAM	
BH-13	3rd Silica Day Bin Baghouse Installed 2006 Controls dust emissions from the 3rd Silica day bin.	▪ Donaldson Torit ▪ Model # 36 HPH ▪ 99.9% control at one micron ▪ 1,385 scfm ▪ 15:1 air-to-cloth ratio ▪ 18" pressure drop ▪ Air pulse cleaning every 10 sec. ▪ Not vented to atmosphere so not subject to CAM	BH-13 is vented to BH-1. Captured dust is returned to the day bin.
BH-14	3rd Silica Dust Collector Baghouse Installed 2006 Controls dust emissions from the 3rd Silica system.	▪ Mikro PUL ▪ Model #156-10-68 TRH "C" ▪ 99.9% control at one micron ▪ 5,600 acfm ▪ 1.7:1 air-to-cloth ratio ▪ 6" pressure drop ▪ Air pulse cleaning every 10 sec. ▪ Not vented to atmosphere so not subject to CAM	BH-14 is vented to BH-1. Captured dust is returned to the day bin.
BH-15	L-5A Mix Stand and transfer system baghouse Installed 2014 Controls dust from L-5A Mix Stand	▪ Donaldson Torit ▪ Model # DFO 4-16 ▪ 99.99% ▪ Reverse Pulse Jet ▪ 10,000 acfm ▪ 1.6:1 ▪ 16 cartridges ▪ 0" to 6" WC ▪ Precontrol PTE of 62 tpy so not subject to CAM	BH-15 is vented to the atmosphere
BH-16	L-13 Mixing Baghouse Installed 9/15/12 Controls dust from L-13 Mix stand	▪ Donaldson Torit ▪ Model # DFO 2-8 ▪ 99.99% at <0.5 micron ▪ Reverse Pulse Jet ▪ 4,500 acfm ▪ 2.96:1	BH-16 is vented to the atmosphere

		▪ 8 bags ▪ 0" to 6" WC ▪ Precontrol PTE of 62.28 tpy so not subject to CAM ▪	
BH-17	L-5A Hammer Mill BH-A Installed 9/15/12	▪ MikroPul ▪ Model #156S-10-68 TRH C ▪ 99.99% ▪ Reveres Pulse Jet ▪ 4,800 acfm ▪ 2.6:1 ▪ 156 bags ▪ 0" to 6" WC ▪ Not vented to atmosphere so not subject to CAM	BH-17 is vented to BH-1
BH-18	L-5A Hammer Mill BH-B (Closed Loop Process Unit) Installed 9/15/12	▪ Flanders ▪ Model #KG12H3W-GGF-304-D1 HEPA ▪ 99.97% ▪ 4,800 acfm ▪ 6.2' x 2' HEPA filter ▪ 1" to 6" WC ▪ Not vented to atmosphere so not subject to CAM	BH-18 is vented to BH-1
BH-19	TEKLON Die cleaning process Installed 9/15/12	▪ Donaldson Torit ▪ Model # DFO 2-2 ▪ 99.99% at <o.5 micron ▪ Reverse Pulse Jet ▪ 1,000 acfm ▪ 2.63:1 ▪ 16 bags ▪ 0" to 5" WC ▪ Not vented to atmosphere so not subject to CAM	BH-19 is vented to the FB-16 then to atmosphere
BH-20	EM, LLC Extruder Lab Baghouse Installed 6/25/01	▪ Fabric Filters Northwest ▪ Model # 121-10-BR ▪ 99.9% ▪ Reverse Pulse Jet ▪ 8,000 acfm ▪ 4.4:1	BH-20 is vented to the atmosphere

		▪ 121 bags ▪ 0" to 5" WC ▪ Precontrol PTE of <1 tpy so not subject to CAM	
BH-21 (future)	Line 17 Mix Stand Baghouse	▪ Future ▪ Estimated Precontrol PTE of 10.6 tpy so not subject to CAM	
BH-22 (future)	Line 6A Mix Stand Baghouse	▪ Future ▪ Estimated Precontrol PTE of 26 tpy so not subject to CAM	Future – Planned to vent to atmosphere
BH-23 Installed 2018	New Silica System	▪ Donaldson ▪ Torit CPC-6 ▪ 99.7% ▪ Reverse Pulse Jet ▪ 2,200 acfm ▪ (6) Merv 15 filter with Ultra Web media ▪ 1" to 6" WC ▪ Precontrol PTE of 28.8 tpy so not subject to CAM	BH-23 is vented to atmosphere
BH-24 (future)	Line 15 Mix Stand Baghouse	▪ Future	
BH-25 (future)	Line 16 Mix Stand Baghouse	▪ Future	
BH-26 (future)	Silica #4 Hammer Mill	▪ Future	
BH-27 (Future)	Line 14 Mix Stand Baghouse	▪ Future	
FB-2 Decommissioned	West Fiber Bed Filter Installed June 1995 Controls oily smoke from the Black sheet regrind room.	▪ Fabric Filters Air Systems, Inc. ▪ Model FB-4 ▪ PM control: 98.5% ▪ 9,000 acfm	Not in service
FB-3	North #2 Fiber Bed Filter Installed 2004 Controls the oily smoke from Lines 1, 2, 3, 4, extruders and calendars operations.	▪ Air Tek Northwest. ▪ Donaldson WSO ▪ WSO 25-12 ▪ 10" Pressure drop ▪ PM control:99.0% DOP with 99.97% HEPA filtration. ▪ 12,000 acfm ▪ Precontrol PTE of 2.6 tpy so not subject to CAM	Vented to atmosphere

FB-4 Decommissioned	Teklon System Fiber Bed Installed 2004	▪ Fabric Filters Air Systems, Inc. ▪ Model 6-FB2-10 Fiberbed ▪ PM control: 98.5% ▪ 3,000 acfm	Not in service
FB-5 Decommissioned 2010	Teklon System Fiber Bed Installed June 2004 Controls oil smoke from Line 12 extruder and calendar.	▪ Fabric Filters Air Systems, Inc. ▪ Model 6-FB2-10 Fiberbed ▪ PM control: 98.5% ▪ 10,500 acfm	Not in service
FB-5A	Teklon System Fiber Bed Filter Installed March 2010 Controls oily smoke from the Black sheet regrind room.	▪ Air Tek Northwest. ▪ Donaldson WSO ▪ WSO 25-12 ▪ 10" Pressure drop ▪ PM control: 99.97% HEPA filtration. ▪ 12,000 acfm ▪ Not vented to atmosphere so not subject to CAM	FB-5A vents into Building #11.
FB-6	South Fiber Bed Filter Controls oily smoke from Line 8, the Pelletizer, and the Pellet silo.	▪ Fabric Filters Air Systems, Inc. ▪ Model 6-FB2-10 Fiberbed ▪ PM control: 99.0% ▪ 24,000 acfm ▪ Precontrol PTE of 12.4 tpy so not subject to CAM	Vented to atmosphere
FB-7A (The original FB-7 was removed from service and replaced with a more efficient unit FB-7A. The original FB-7 has been repurposed for the die cleaning station and is identified as FB-11A)	Main Oil Air Stripper Fiber Bed Controls oily smoke from oil Air Strippers #1, # 2, and Distillation Line 8 Air Stripper.	▪ Donaldson WSO ▪ WSO 25-8 ▪ PM control: 99.0% HEPA filtration. ▪ 4,000 acfm ▪ Not vented to atmosphere so not subject to CAM	Vented to CB-1.
FB-8	South West Fiber Bed Filter Controls oily smoke from Lines 7.	▪ Air Tek Northwest. ▪ Donaldson WSO ▪ WSO 25-12 ▪ 10" Pressure drop	FB-8 vents to the atmosphere.

		▪ PM control: 99.0% HEPA filtration. ▪ 12,000 acfm ▪ Precontrol PTE 6 tpy so not subject to CAM	
FB-9	N.E. Fiber Bed Filter Installed September 2012 Controls oil smoke from Line 5A extruder and calendar.	▪ Donaldson Torit ▪ 9/1/12 ▪ 99% ▪ 24,000 acfin ▪ Precontrol PTE 16.7 tpy so subject to CAM	FB-9 vents to atmosphere
FB-10	Controls oily smoke from Line13 (Lithium Line)	▪ Donaldson Torit ▪ 9/1/12 ▪ 99.0 % ▪ DFO 4-16 ▪ 24,000 acfin ▪ Precontrol PTE < 1 tpy so not subject to CAM	FB-10 vents to atmosphere
FB-11	Tooling Room Controls oily smoke/mist from the roll tooling process.	▪ Aercology ▪ MDV-9000 ▪ 4/1/2000 ▪ PM control: 99.0% ▪ 9,000 acfm ▪ 1" to 7" WC ▪ Not vented to atmosphere so not subject to CAM	FB-11 vents to Building # 2 tooling room.
FB-11A	Controls oily smoke from Die Cleaning Station Installed 2018	▪ Donaldson Torit ▪ 9/1/12 ▪ 99.7% ▪ WSO 25-8 ▪ 4,000 acfm ▪ Not vented to atmosphere so not subject to CAM	FB-11A vents to Building # 1.
FB-12 (future)		▪ Future	
FB-13 (future)		▪ Future	
FB-14 (future)		▪ Future ▪ Precontrol PTE of 12.7 tpy so not subject to CAM.	Future – Planned to vent to atmosphere
FB-15 (future)	Line 14 Fiber Bed	▪ Future	
FB-16 (future)	Line 15 Fiber Bed	▪ Future	
FB-17 (future)	Line 16 Fiber Bed	▪ Future	

8. Categorically insignificant activities include the following:

- Constituents of a chemical mixture present at less than 1% by weight of any chemical or compound regulated under Divisions 20 through 32 of this chapter, or less than 0.1% by weight of any carcinogen listed in the U.S. Department of Health and Human Service's Annual Report on Carcinogens when usage of the chemical mixture is less than 100,000 pounds/year
- Evaporative and tail pipe emissions from on-site motor vehicle operation
- Natural gas and propane burning equipment rated at less than or equal to 2.0 million Btu/hr
- Office activities
- Janitorial activities
- Personal care activities
- Groundskeeping activities including, but not limited to building painting and road and parking lot maintenance
- Instrument calibration
- 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
- Bench scale laboratory equipment and laboratory equipment used exclusively for chemical and physical analysis, including associated vacuum producing devices but excluding research and development facilities
- Temporary construction activities
- Warehouse activities
- Accidental fires
- Air vents from air compressors
- Air purification systems
- Continuous emissions monitoring vent lines
- Instrument air dryers and distribution
- 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
- 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
- Non-contact steam vents and leaks and safety and relief valves for boiler steam distribution systems
- Boiler blowdown tanks
- Combustion source flame safety purging on startup

EMISSION LIMITS AND STANDARDS, TESTING, MONITORING, AND RECORDKEEPING

Summary of Applicable Requirements

Requirement	Description	EU	Monitoring
1991 ACDP, Condition 4	10.0 pounds/hour (daily average) TCE emission limit from CB-1 stack.	EU-1	Continuous TCE emission monitor.
1991 ACDP, Condition 7	TCE leak detection.	Facility Wide	Conduct leak detection monitoring in accordance with the Department approved Leak Detection Plan.
OAR 340-208-0110	VE < 20%, 6 minute average in any 60 minutes	All	Because the production activities generate no visible emissions except for emissions units EU-2.1 and EU-2.3 (Boilers) when fired on oil. No monitoring is being required except for weekly Method 9 VE tests for the boilers when burning oil.
OAR 340-208-0210	Minimize the release of fugitive emissions.	Facility Wide	Maintain records of complaints and actions taken. Respond to complainant within 24 hours.
OAR 340-208-0300	Air contaminants not a nuisance	Facility Wide	Maintain records of complaints and actions taken. Respond to complainant within 24 hours.
OAR 340-208-0450	Prevention of off-site deposition, PM >250 microns.	Facility Wide	Maintain records of complaints and actions taken. Respond to complainant within 24 hours.
OAR 340-228-0110(2), 40 CFR 60.42c	#2 Fuel Oil not contain more than 0.5% sulfur by weight.	EU-2.1 and 2.3	For each fuel shipment received, a vendor certification that oil meets requirement.
OAR 340-228-0210(1)(b)(B)	PM $\leq$ 0.14 grains/dscf, corrected to 12% CO_2.	EU-2.1, EU-2.3	Weekly VE tests are being used as surrogate to assure continuous compliance with the grain loading standard when EU-2.1 and EU-2.3 burn oil. No monitoring is being required when only natural gas is burned.
40 CFR Part 60, Subpart Dc (Applicability date = 6/89)	NSPS for boilers greater than or equal to 10 MMBtu/hour but less than 100 MMBtu/hour heat input applies to EU-2.1 and EU-2.3 (Boiler B-1 and Boiler B-3) because they fit within the size range and were constructed after June 9, 1989.	EU-2.1 & 2.3	Fuel oil monitoring –low sulfur fuel documentation

Requirement	Description	EU	Monitoring
40 CFR 60.7(b)	Startup, shutdown, and malfunction events.	EU-2.1 & 2.3	Maintain records on occurrence.
40 CFR 60.7(f)	Maintain file of measurements	EU-2.1 & 2.3	Maintain records.
40 CFR 60.11(d)	Operate equipment with good air pollution control practices.	EU-2.1 & 2.3	NA
40 CFR 60.11(g)	Credible Evidence	EU-2.1 & 2.3	NA
40 CFR 60.43c(c) & (d)	20% opacity (6-minute average) except one 27% opacity in any hour when burning oil.	EU-2.1 & 2.3	Weekly EPA Method 9 test.
40 CFR 60.48c(d), (e), & (f)	Semi-annual reporting requirement to demonstrate compliance with fuel sulfur standard.	EU-2.1 & 2.3	Semi-annual reports to include: (a) report dates (b) fuel supplier certifications (c) permittee certification that fuel supplier certifications represent all oil combusted during the quarter or that no oil was combusted.
40 CFR 63 Subpart JJJJ OAR 340-244-0220	Coating NESHAP	EU-4	Monitor VHAP content in glass mat lamination adhesive
40 CFR 63 Subpart ZZZZ OAR 340-244-0220	RICE engine NESHAP for the natural gas emergency engine	AI	use certified engine and maintain records
40 CFR 63 Subpart DDDDD OAR 340-244-0220	Major Source Boiler MACT for natural gas boilers	EU2.1 & 2.3	one time energy assessment and annual tune-up
40 CFR 63 Subpart EEEE	Organic Liquid Distribution	EU-1	Maintain records of tank sizes and transfers
40 CFR Part 64	Compliance Assurance Monitoring (CAM)	EU-1	Continuous TCE emissions monitoring. Maintain daily records and compare with standard.

9. The following federal requirements are not applicable to this facility for the reasons given.

9.a. 40 CFR Part 60, Subpart Dc (NSPS for boilers constructed after June 6, 1989, that are greater than or equal to 10 million Btu per hour but less 100 million Btu per hour heat input) does not apply to EU-2.2 because the boiler was manufactured in 1973 and no modifications have been made since that date.

9.b. 40 CFR Part 63, Subpart T (NESHAP for Halogenated Solvent Cleaning) was determined by EPA in 1997 to be not applicable to this facility. The EPA is currently in the process of developing a MACT standard for the Microporous Plastic Membrane Manufacturing industry. When the new MACT is promulgated by EPA, the Department will incorporate it into this permit in accordance with Department procedures.

9.c. 40 CFR Part 63, Subpart DDDDD (Industrial, Commercial, and Institutional Boilers and Process Heaters). This is applicable to the boilers on-site as the permittee is a major source of hazardous air pollutants (HAPs). The boilers are defined as natural gas boiler (with oil back up). The facility must conduct periodic tuue-ups on the boiler bi-annually.

9.d. 40 CFR Part 63, Subpart ZZZZ and Part 60, Subpart JJJJ (RICE Engines). This is applicable to the one natural gas fired emergency generator. This engine was installed in 2014. The engine is an emergency engine, and an EPA certified engine and therefore no emission testing is required. The facility must follow the maintenance specifications in the rules.

9.e. 40 CFR Part 63, Subpart EEEE (Organic Liquid Distribution) . This is identified as an applicable requirement as the permittee is a major source of hazardous air pollutants and meets the definition of organic liquid distribution in the rule. However, because of the limited storage and transfer capacity, the only applicable requirements is that the facility must retain documentation that each TCE storage tank and transfer rack is not subject to control requirements.

9.f. 40 CFR Part 68 (Accidental Release). The permittee has certified that the amount of all regulated chemicals present on the plant site are less than the threshold quantities contained in the rule, and thus the rule does not apply.

10. 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 OAR 340-028-0110. For the most part, the standards that apply to IEUs are for opacity (20% limit) and particulate matter (0.10 gr/dscf limit). The Department does not consider it likely that IEUs could exceed an applicable emissions limit or standard because IEUs are generally equipment or activities that do not have any emission controls (e.g., small natural gas fired space heaters) and do not typically have visible emissions. Since there are no controls, no visible emissions, and the emissions are less than one ton per year, the Department does not believe that monitoring, recordkeeping, or reporting is necessary for assuring compliance with the standards.

PLANT SITE EMISSION LIMITS

BASELINE EMISSIONS

11. Entek was constructed and began operations in 1987 and therefore did not exist in the baseline period (1977 or 1978), thus the baseline emissions rates for all criteria pollutants is zero.

PROPOSED EMISSIONS

12. The plant will be operated 24 hours per day, 7 days per week, and 52 weeks per year.

13. Baseline emission rates, previous and proposed Netting Basis emission rates and a comparison of the previous and proposed PSEL are shown in the following table.

Pollutant	Baseline Emission Rate (tons/yr)	Netting Basis		Plant Site Emission Limit (PSEL)		
		Previous (tons/yr)	Proposed (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	PSEL Increase (tons/yr)
PM	0	0	0	24	24	0
PM_{10}	0	0	0	14	14	0
$PM_{2.5}$	0	0	1	9	9	NA

CO	0	0	0	99	99	0
NO_x	0	42	42	42	42	0
SO_2	0	0	0	39	39	0
VOC	0	100	100	139	139	0

13.a. The proposed plant site emission limits for PM, PM_{10}, $PM_{2.5}$, SO_2, and CO have been set at the DEQ Generic PSEL level in accordance with OAR 340-222-0041(1) since the projected emission levels are less than the Generic PSEL level but greater than the de minimis level of 1 ton. The $PM_{2.5}$ PSEL is being established for the first time in this permitting action

13.b. The proposed PSEL for NO_x has been set in accordance with OAR 340-222-0041(2). See discussion Item 15 below.

13.c. The proposed PSEL for VOC has been set at the facility's potential to emit in accordance with OAR 340-222-0041(3)(a).

13.d. PSD Netting Basis for NOx and VOC was established in the 1997 Oregon Title V Permit.

SIGNIFICANT EMISSION RATE ANALYSIS

14. This source is located in an area that is in attainment for all pollutants.

15. The proposed PSEL for all pollutants is greater than or equal to the netting basis as shown in the following table. Because the emission rates of the pollutants over the netting basis are less than the significant emission rate, the Department has determined that the health and welfare of the public is protected and no further air quality impact analysis is required to be performed.

In 1997, the Department conducted computer modeling (SCREEN3) to assess the air quality impact of 42 tons/year of NO_x emissions because the requested emission level was greater than the significant emission rate (SER) trigger level of 40 tons/year. The modeling demonstrated that at 42 tons/year the emissions did not cause or contribute to air quality levels in excess of any state or national ambient air quality standards or cause or contribute to air quality levels in excess of applicable PSD increments. The Department also modeled air quality impacts at an emission rate of 53 tons/year of NO_x (the capacity of the natural gas boilers). This analysis resulted in a PSD increment consumption of 31 micrograms/m^3, which is greater than the 25 micrograms/m^3 PSD increment allowed by the rule. As such, the permittee is restricted to a NO_x emission level of 42 tons/year until such time as they perform a more detailed air quality impact analysis to demonstrate that at emission rates greater than 42 tons, no violation of the PSD increment will occur. That is, the permittee is not allowed any increases in NO_x emissions above the netting basis without first performing an air quality impact analysis that demonstrates the health and welfare of the public is protected.

Significant Emission Rate

Pollutant	SER (tons/year)	Netting Basis (tons/year)	Proposed Emissions (tons/year)	Proposed emission increase over netting basis (tons/year)
PM	25	0	24	24
PM_{10}	15	0	14	14
$PM_{2.5}$	10	0	9	9

CO	100	0	99	99
NO_x	40	42	42	0
SO_2	40	0	39	39
VOC	40	100	139	39

HAZARDOUS AIR POLLUTANTS

16. The following hazardous air pollutants may be emitted from this facility.

Hazardous Air Pollutants

Pollutant	Emissions (tons/year)
Trichloroethylene TCE)	131.52
1,2-Epoxybutane	0.24
Ethyl benzene	0.01
Ethylene glycol	0.02
Methanol	0.04
Perchloroethylene	0.01
Toluene	0.05
Xylenes (mixed) including:	0.02
Hexane, Methylene chloride, Methyl isobutyl ketone	<0.01
TOTAL	**131.9**

17. The following toxic substance is currently stored or used at this facility in the quantities indicated.

Toxic & Flammable Substances

CAS NO.	Chemical Name	<1,000 lb/year	1,001-10,000 lb/year	10,001-20,000 lb/year	20,001-50,000 lb/year	>50,000 lb/year
64742-47-8	WD-40		X			
67-64-1	Acetone	X				
74-86-2	Acetylene		X			
67-63-0	Isopropyl Alcohol	X				
68476-34-6	Diesel Fuel					X
64-17-5	Ethanol	X				
64742-47-8	Mineral Spirits	X				

OTHER PERMITS

18. Other permits issued or required by the Department for this source include an NPDES-Storm Water Discharge Permit, No. 1200-Z.

COMPLIANCE HISTORY

19. During this permit term air quality inspections were conducted in 2011, 2013, 2015, and 2017. The facility was found to be in compliance with all permit conditions.

20. During the prior permit term, the facility did not receive any air quality complaints.

SOURCE TEST RESULTS

21. A summary of source test results for this facility is in shown in the following table.

Source Tests

Source	Test Date	Pollutant	Operating Parameters	Results
Boiler (B-1)	8/31/99	NO_x	Fuel: Natural Gas 1,013 ft^3 /min	5.10 lb/hour 83.9 lb/MMft^3
Boiler (B-1)	3/23/05	PM	Fuel: #2 Diesel 472 gallons/hour 48,267 lb steam/hour	0.0067 gr/dscf @ 12% CO_2 0.707 lb/hour 1.5 lb/Mgal

PUBLIC NOTICE

22. Pursuant to OAR 340-218-0210(1), the renewal of a Title V permit is a Category III public notification action and in accordance with OAR 340-209-0030(3) requires the Department to provide a 35-day period during which the public can submit comments in writing. This permit was placed on public notice from November 9, 2018 to December 14, 2018. No comments were submitted. DEQ requested and EPA agreed to an expedited review of 5 days since there were no substantive or adverse comments during the comment period. On December 18, 2018 EPA notified DEQ that there were no objections to issuing the permit.

Any person may petition before 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 it was impracticable to raise such objections within such period, or unless the grounds for such objection arose after such period.

EMISSION DETAIL SHEETS

23. Detailed emission calculations are presented in Appendix 1

Appendix 1
Emission Detail Sheets and CAM Analysis

Emission Detail Summary
Entek International LLC
Permit No. 22-6024-TV-01

Pollutant: PM

Emission Unit ID	Emission Unit Description	Annual Production	Units	Emission Factor	Reference	Emissions (tons/yr)
NG Scenario						
EU-2.1	B-1[2]	481	MMcf	2.5 lb/MMcf	DEQ AQ-EF05	0.6
EU-2.3	B-3	769	MMcf	2.5 lb/MMcf	DEQ AQ-EF05	1.0
NG/Diesel Scenario[1]						
EU-2.1	large boiler, B-1	463	MMcf	2.5 lb/MMcf	DEQ AQ-EF05	0.6
		130	Mgal	3.3 lb/Mgal	DEQ AQ-EF05	0.2
EU-2.3	boiler 3, B-3	741	MMcf	2.5 lb/MMcf	DEQ AQ-EF05	0.9
		208	Mgal	3.3 lb/Mgal	DEQ AQ-EF05	0.3
EU-5	PM Controls (BH-22)	4,699,531	board -ft	1.1134E-05 lbs./bd. ft.	ENTEK ENGINEERING ESTIMATE	0.03
	PM Controls (BH-23)	358	day	4.4312e-01 lbs./day	ENTEK ENGINEERING ESTIMATE	0.08
	PM Controls (FB-14)	4,699,531	board -ft	5.42E-05 lbs./bd. ft.	ENTEK ENGINEERING ESTIMATE	0.13
AI	Aggregate Insignificant Acitivities					1.0
BH-1-20 (current)	baghouses					
BH-21 & 24-27 (future)						
FB-3, FB5A, FB6-11 (current)	fiberbeds					
FB-12-13,15-17 (future)						
bulk unloading activities	bulk off-loading of silica and polyethylene, material handling					
[1] NG/Diesel is the higher of the two scenrios and therfore is used in the PTE calculation					Total:	3.3
[2] EU 2.2 (B-2) boiler has been permanently decommissioned and is re					Generic PSEL	24
B-1 is the back up boiler, 67.77 MMBtu/hr, installed 1991						
B-3 is the main boiler, 96.6 MMBtu/hr, installed 2015						

Pollutant: $PM_{10}/PM_{2.5}$

Emission Unit ID	Emission Unit Description	Annual Production	Units	Emission Factor	Reference	Emissions (tons/yr)
NG Scenario						
EU-2.1	B-1	481	MMcf	2.5 lb/MMcf	DEQ AQ-EF05	0.6
EU-2.3	B-3	769	MMcf	2.5 lb/MMcf	DEQ AQ-EF05	1.0
NG/Diesel Scenario[1]						
EU-2.1	B-1	463	MMcf	2.5 lb/MMcf	DEQ AQ-EF05	0.6
		130	Mgal	2.3 lb/Mgal	DEQ AQ-EF04	0.1
EU-2.3	B-3	741	MMcf	2.5 lb/MMcf	DEQ AQ-EF05	0.9
		208	Mgal	2.3 lb/Mgal	DEQ AQ-EF04	0.2
EU-5	PM_{10} Controls (BH-22)	4,699,531	board -ft	1.1134E-05 lbs./bd. ft.	ENTEK ENGINEERING ESTIMATE	0.03
	PM_{10} Controls (BH-23)	358	days	6.6380e-2 lbs./day	ENTEK ENGINEERING ESTIMATE	0.01
	PM_{10} Controls (FB-14)	4,699,531	board -ft	5.42E-05 lbs./bd. ft.	ENTEK ENGINEERING ESTIMATE	0.13
	$PM_{2.5}$ Controls (BH-22)	4,699,531	board -ft	1.1134E-05 lbs./bd. ft.	ENTEK ENGINEERING ESTIMATE	0.03
	$PM_{2.5}$ Controls (BH-23)	358	days	9.7487e-4 lbs./day	ENTEK ENGINEERING ESTIMATE	0.00
	$PM_{2.5}$ Controls (FB-14)	4,699,531	board -ft	5.42E-05 lbs./bd. ft.	ENTEK ENGINEERING ESTIMATE	0.13
AI	Aggregate Insignificant Acitivities					1.0
BH-1-20 (current)	baghouses					
BH-21 & 24-27 (future)						
FB-3, FB5A, FB6-11 (current)	fiberbeds					
FB-12-13,15-17 (future)						
bulk unloading activities	bulk off-loading of silica and polyethylene, material handling					
1 NG/Diesel is the higher of the two scenrios and therfore is used in the PTE calculation					Total:	3.2
					Generic PM_{10} PSEL	14
					Generic $PM_{2.5}$ PSEL	9

Pollutant: SO_2

Emission Unit ID	Emission Unit Description	Annual Production	Units	Emission Factor	Reference	Emissions (tons/yr)
NG Scenario						
EU-2.1	B-1	481	MMcf	2.6 lb/MMcf	DEQ AQ-EF05	0.6
EU-2.3	B-3	769	MMcf	2.6 lb/MMcf	DEQ AQ-EF05	1.0
NG/Diesel Scenario[1]						
EU-2.1	B-1	463	MMcf	2.5 lb/MMcf	DEQ AQ-EF05	0.6
		130	Mgal	78.5 lb/Mgal	DEQ AQ-EF04	5.1
EU-2.3	B-3	741	MMcf	2.5 lb/MMcf	DEQ AQ-EF05	0.9
		208	Mgal	78.5 lb/Mgal	DEQ AQ-EF04	8.2
					Total:	14.8
					Generic PSEL	39

1 NG/Diesel is the higher of the two scenarios and therfore is used in the PTE calculation

Pollutant: NOx

Emission Unit ID	Emission Unit Description	Annual Production	Units	Emission Factor	Reference	Emissions (tons/yr)
NG Scenario						
EU-2.1	B-1	481	MMcf	83.9 lb/MMcf	source test August 1999	20.2
EU-2.3	B-3	769	MMcf	50 lb/MMcf	DEQ AQ-EF05	19.2
NG/Diesel Scenario[1]						
EU-2.1	B-1	463	MMcf	83.9 lb/MMcf	source test August 1999	19.4
		130	Mgal	24 lb/Mgal	DEQ AQ-EF04	1.6
EU-2.3	B-3	741	MMcf	50 lb/MMcf	DEQ AQ-EF05	18.5
		208	Mgal	24 lb/Mgal	DEQ AQ-EF04	2.5
					Total:	42.1
					PTE PSEL	42

1 NG/Diesel is the higher of the two scenarios and therfore is used in the PTE calculation

Pollutant: CO

Emission Unit ID	Emission Unit Description	Annual Production	Units	Emission Factor	Reference	Emissions (tons/yr)
NG Scenario						
EU-2.1	B-1	481	MMcf	84 lb/MMcf	DEQ AQ-EF05	20.2
EU-2.3	B-3	769	MMcf	84 lb/MMcf	DEQ AQ-EF05	32.3
NG/Diesel Scenario[1]						
EU-2.1	B-1	463	MMcf	84 lb/MMcf	DEQ AQ-EF05	19.4
		130	Mgal	5 lb/Mgal	DEQ AQ-EF04	0.3
EU-2.3	B-3	741	MMcf	84 lb/MMcf	DEQ AQ-EF05	31.1
		208	Mgal	5 lb/Mgal	DEQ AQ-EF04	0.5
					Total:	52.5
					Generic PSEL	99.0

1 NG is the higher of the two scenrios and therfore is used in the PTE calculation

Pollutant: VOC

Emission Unit ID	Emission Unit Description	Annual Production	Units	Emission Factor	Reference	Emissions (tons/yr)
EU-1	microscopic porous plastic operations			material balance	material balance	131.5
EU-3	VOC misc (IPA usage for VOC PSEL only)			material balance	material balance	3.2
Boilers						
NG Scenario						
EU-2.1	B-1	481	MMcf	5.5 lb/MMcf	DEQ AQ-EF05	1.3
EU-2.3	B-3	769	MMcf	5.5 lb/MMcf	DEQ AQ-EF05	2.1
NG/Diesel Scenario[1]						
EU-2.1	B-1	463	MMcf	5.5 lb/MMcf	DEQ AQ-EF05	1.3
		130	Mgal	0.2 lb/Mgal	DEQ AQ-EF04	0.01
EU-2.3	B-3	741	MMcf	5.5lb/MMcf	DEQ AQ-EF05	2.0
		208	Mgal	0.2 lb/Mgal	DEQ AQ-EF04	0.02
AI	Aggregate Insignificant Acitivities					1.00
EU-4	glass mat lamination			material balance		
misc VOC	box stenciling ink			material balance		
					Total:	139.0
					PTE PSEL	139.0

[1] NG and diesel boiler emissions for each scenario are equivalent for this pollutant.

Entek CAM Analysis

EU ID	Emission Point/Description	Pollutant	Limit	Control Device Used	Pre-Control PTE > major source?	Post-Control PTE TPY> major source?	Is the limit subject to CAM?	Reference	Monitoring Requirement
EU-1	Microporous Plastic Production Operations (fugitives and non-fugitives)	TCE	10.0 lbs/hour as a daily average (Permit Condition 11 - State ony enforceable)	yes - VARA Carbon Bed Adsorption System	YES	YES	NO - TCE CEMS (exemption: 40 CFR 64.2(b)(1)(iv))	CAM is not applicable because emissions are continuously monitored with a TCE continuous emission monitoring system (CEMS) and the applicable emission limit is a TCE state only enforceable limit of 10 lb/hr which was established in the 1991 ACDP state permit	continuous monitoring with a TCE CEMS as outlined in Permit Conditions 13-20
		VOC	NO	NA					
EU-2.1 and EU-2.3	Boilers	PM, PM10, PM2.5, NOx, CO, VOC, SO2	grain loading, opacity, sulfur limits	NO	NA	NA	no control device	NA	VE monitoring when burning oil and assumed in compliance with grain loading if opacity is within limits, SO2 fuel analysis (see Conditions 23-26)
EU-3	VOC misc (IPA usage for VOC PSEL only)	VOC	NO	NA	NA	NA	NA	NA	material balance (PSEL only)
EU-4	glass mat lamination	VOC	Yes, NESHAP Subpart JJJJ - ≤0.04 kg organic HAP/kg coating material; or ≤0.2 kg organic HAP/kg coating solids	NO	NA	NA	no control device	NA	monitor HAP content as purchased (see Conditon 33)
EU-5	PM Controls	PM	opacity/grain loading	Yes - baghouses and fiberbeds	NO	NO	NO	pre-controlled emission less than major source	weekly pressure drop (see Condition 37)
AI		PM/VOC	NO	NA					