WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

APPLICATION FOR NSR PERMIT AND TITLE V PERMIT REVISION (OPTIONAL)

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

☐ **CONSTRUCTION** ☒ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☐ **CLASS II ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

☐ **ADMINISTRATIVE AMENDMENT** ☐ **MINOR MODIFICATION**
☐ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant *(as registered with the WV Secretary of State's Office):*
Superior Fibers LLC

2. Federal Employer ID No. ***(FEIN):***
2 0 5 3 5 0 9 7 9

3. Name of facility *(if different from above):*
Superior Fibers LLC Reedsville Plan

4. The applicant is the:
☐ **OWNER** ☐ **OPERATOR** ☒ **BOTH**

5A. Applicant's mailing address:
P.O. Box 478

Reedsville, WV 26547

5B. Facility's present physical address:
Rt. 92 South

Reedsville, WV 26547

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☒ **YES** ☐ **NO**

- If **YES,** provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A.**
- If **NO,** provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A.**

7. If applicant is a subsidiary corporation, please provide the name of parent corporation: No

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site?* ☒ **YES** ☐ **NO**

- If **YES,** please explain: Applicant owns the facility

- If **NO,** you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.): Glass fiber manufacturing

10. North American Industry Classification System **(NAICS)** code for the facility:
32721

11A. DAQ Plant ID No. (for existing facilities only):
0 7 7 – 0 0 0 1 5

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
R13-2501A

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction** or **Relocation permits,** please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

Interstate 79 to Interstate 68 East, to Exit 4, to State Route 7 East and proceed for approximately 12 miles, to State Route 92 South and proceed for approximately 0.5 miles; the facility will be located on right side of the road.

12.B. New site address (if applicable):	12C. Nearest city or town:	12D. County:
NA	Reedsville, WV	Preston
12.E. UTM Northing (KM): 4,374.347	12F. UTM Easting (KM): 603.2988	12G. UTM Zone: 17

13. Briefly describe the proposed change(s) at the facility:
Revise permit R13-2501A to expand the existing production capacity. Addition of a second thermal oxidizer to control emissions from the expansion.

14A. Provide the date of anticipated installation or change: 01/01/2016 – If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: / /	14B. Date of anticipated Start-Up if a permit is granted: 08/01/2016

14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day 24 Days Per Week 7 Weeks Per Year 52

16. Is demolition or physical renovation at an existing facility involved? ☐ **YES** ☒ **NO**

17**. Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18**. Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process *(if known).* A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance *(if known).* Provide this information as **Attachment D.**

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan,** e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to ***Plot Plan Guidance***) **.**

– Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F.**

23. Provide a **Process Description** as **Attachment G.**

– Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H.**

– For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I.**

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J.**

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K.**

28. Check all applicable **Emissions Unit Data Sheets** listed below:

☐ Bulk Liquid Transfer Operations	☐ Haul Road Emissions	☐ Quarry
☐ Chemical Processes	☐ Hot Mix Asphalt Plant	☐ Solid Materials Sizing, Handling and Storage Facilities
☐ Concrete Batch Plant	☐ Incinerator	☒ Storage Tanks
☐ Grey Iron and Steel Foundry	☐ Indirect Heat Exchanger	

☒ General Emission Unit, specify Glass Melting Furnaces, Fiber Forming Equipment, Curing Oven, Spraying Station

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L.**

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

☐ Absorption Systems	☐ Baghouse	☐ Flare
☐ Adsorption Systems	☐ Condenser	☐ Mechanical Collector
☒ Afterburner	☐ Electrostatic Precipitator	☐ Wet Collecting System

☒ Other Collectors, specify Filter

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M.**

30. Provide all **Supporting Emissions Calculations** as **Attachment N,** or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O.**

➢ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and ***Example Legal Advertisement*** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33**. Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

☒ **YES** ☐ **NO**

➢ If **YES,** identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's ***"Precautionary Notice – Claims of Confidentiality"*** guidance found in the ***General Instructions*** as **Attachment Q.**

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

☐ Authority of Corporation or Other Business Entity	☐ Authority of Partnership
☐ Authority of Governmental Agency	☐ Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R.**

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned ☒ **Responsible Official** / ☐ **Authorized Representative,** hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE _____ DATE: 10-1-15

(Please use blue ink) *(Please use blue ink)*

35B. Printed name of signee: Rod Wilkins		35C. Title: Chief Technology Officer
35D. E-mail: rwilkins@superiorfibers.com	36E. Phone: (740) 398-3809	36F. FAX: (304)-864-3779
36A. Printed name of contact person (if different from above):		36B. Title:
36C. E-mail:	36D. Phone:	36E. FAX:

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- ☒ **Attachment A: Business Certificate**
- ☒ **Attachment B: Map(s)**
- ☒ **Attachment C: Installation and Start Up Schedule**
- ☒ **Attachment D: Regulatory Discussion**
- ☒ **Attachment E: Plot Plan**
- ☒ **Attachment F: Detailed Process Flow Diagram(s)**
- ☒ **Attachment G: Process Description**
- ☒ **Attachment H: Material Safety Data Sheets (MSDS)**
- ☒ **Attachment I: Emission Units Table**
- ☒ **Attachment J: Emission Points Data Summary Sheet**
- ☒ **Attachment K: Fugitive Emissions Data Summary Sheet**
- ☒ **Attachment L: Emissions Unit Data Sheet(s)**
- ☒ **Attachment M: Air Pollution Control Device Sheet(s)**
- ☒ **Attachment N: Supporting Emissions Calculations**
- ☒ **Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans**
- ☒ **Attachment P: Public Notice**
- ☒ **Attachment Q: Business Confidential Claims**
- ☐ **Attachment R: Authority Forms**
- ☐ **Attachment S: Title V Permit Revision Information**
- ☒ **Application Fee**

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

- ☐ ***Forward 1 copy of the application to the Title V Permitting Group and:***
- ☐ ***For Title V Administrative Amendments:***
  - ☐ ***NSR permit writer should notify Title V permit writer of draft permit,***
- ☐ ***For Title V Minor Modifications:***
  - ☐ ***Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,***
  - ☐ ***NSR permit writer should notify Title V permit writer of draft permit.***
- ☐ ***For Title V Significant Modifications processed in parallel with NSR Permit revision:***
  - ☐ ***NSR permit writer should notify a Title V permit writer of draft permit,***
  - ☐ ***Public notice should reference both 45CSR13 and Title V permits,***
  - ☐ ***EPA has 45 day review period of a draft permit.***

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

Table of Contents
R13-2501A Revision Application
October 2015

Main Application

Attachment A	Business Certificate
Attachment B	Site Location Map
Attachment C	Installation and Start-Up Schedule
Attachment D	Regulatory Discussion
Attachment E	Plot Plan
Attachment F	Process Flow Diagrams
Attachment G	Process Description
Attachment H	Safety Data Sheets (SDS)
Attachment I	Equipment List Form
Attachment J	Emission Points Data Summary Sheets
Attachment K	Fugitive Emissions Data Summary Sheets
Attachment L	Emissions Unit Data Sheets
Attachment M	Air Pollution Control Device Sheets
Attachment N	Supporting Calculations
Attachment O	Monitoring/Recordkeeping/Reporting/Testing Plans
Attachment P	Public Notice
Attachment Q	Business Confidential Claims

ATTACHMENT A – BUSINESS CERTIFICATE

STATE OF WEST VIRGINIA
State Tax Department, Excise and Support Unit
P. O. Box 885
Charleston, WV 25323-0885

Earl Ray Tomblin, Governor

Mark W. Matkovich, Tax Commissioner

KAREN WILHELM
SUPERIOR FIBERS LLC
1333 CORPORATE DR STE 350
IRVING TX 75038-2554

Letter Id: L0599169344
Issued: 05/21/2015

West Virginia State Tax Department
Statement of Good Standing

EFFECTIVE DATE: May 21, 2015

A review of tax accounts indicates that the above named taxpayer is in good standing as of the effective date of this document.

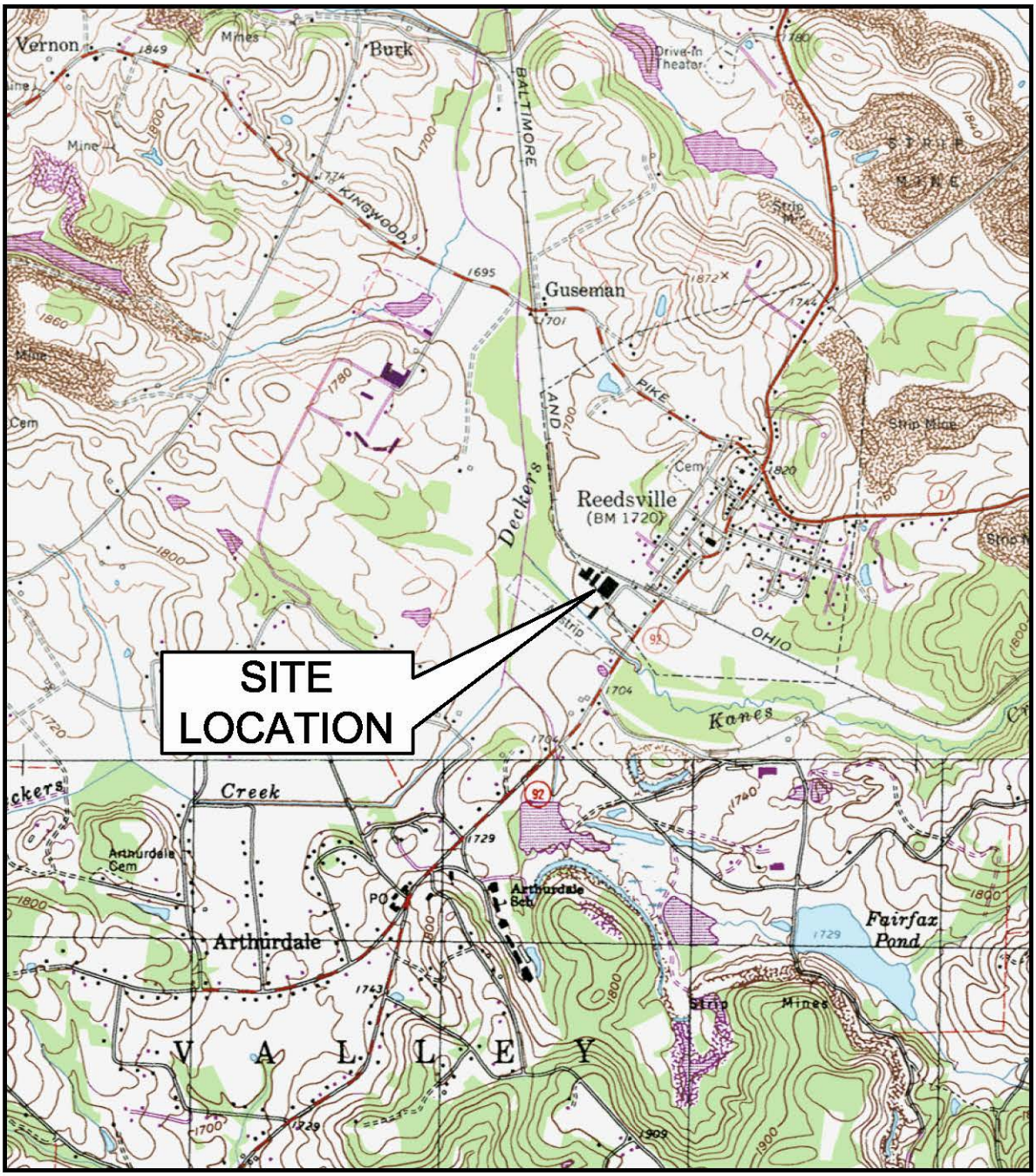
The issuance of this Statement of Good Standing shall not bar any audits, investigations, assessments, refund or credits with respect to the taxpayer named above and is based only on a review of the tax returns and not on a physical audit of records.

Sincerely,

Crystal G. Peal

Crystal G. Peal, Tax Unit Supervisor
Excise and Support Unit
Tax Account Administration Division

ATTACHMENT B – SITE LOCATION MAP



USGS QUADRANGLE
Masontown, WV 1976 Edition
Newburg, WV 1997 Edition

0 1000 2000 4000

GRAPHIC SCALE (IN FEET)
1" = 2000'

North

S&J ENVIRONMENTAL SERVICES, LLC

Superior Fibers, LLC			
Superior Fibers, LLC Reedsville, WV Facility Figure 1 Site Location Topographic Map Reedsville, West Virginia			
PROJECT NO.: _____-_____	REVIEWED BY: JG	DRAWN BY: DS	DATE: 7/15/2015

Drawing File: Superior Fibers.dwg

ATTACHMENT C - INSTALLATION AND START UP SCHEDULE

ATTACHMENT C – INSTALLATION AND START UP SCHEDULE

New Equipment	Install Date	Startup Date
Twenty two Melting Furnaces with glass fiber extrusion apparatus and glass fiber forming drums with binder applicators	4/01/2016	8/01/2016
Mat Let-Off Table	4/01/2016	8/01/2016
Spray Station	4/01/2016	8/01/2016
Curing Oven	4/01/2016	8/01/2016
Thermal Oxidizer	4/01/2016	8/01/2016

ATTACHMENT D - REGULATORY DISCUSSION

ATTACHMENT D – REGULATORY DISCUSSION

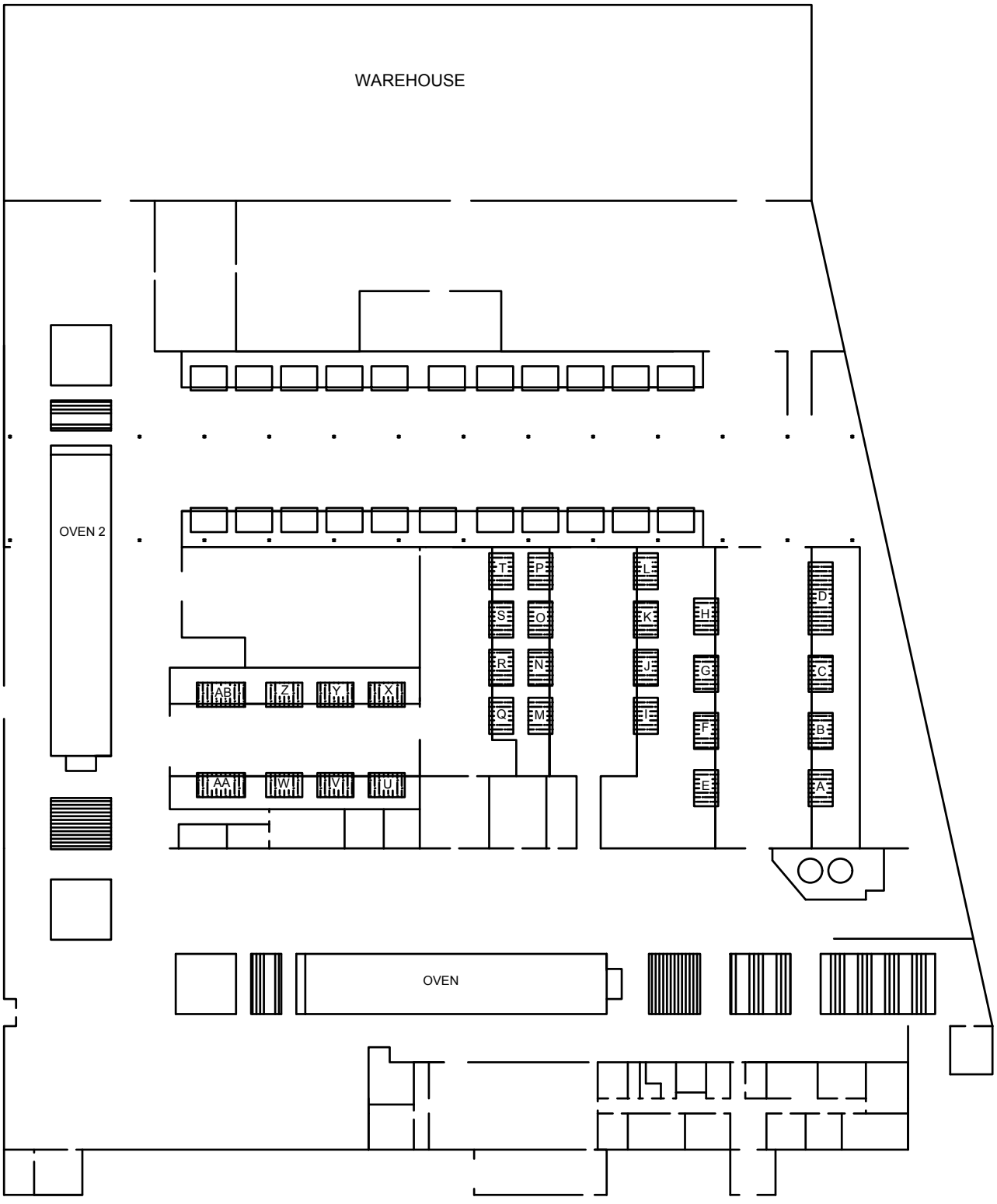
Presumed Applicable CAA Requirements

Regulatory Citation	Emission Source Affected	Description of Applicability	Compliance Demonstration
45CSR6-4.3	Regenerative Thermal Oxidizer (CD-2)	20% opacity from stack	Monthly visual observation and recordkeeping of visual observations.
45CSR6-4.6	Regenerative Thermal Oxidizer (CD-2)	Designed, operated and maintained to prevent objectionable odors.	Unit selected is of similar design to currently operating
45CSR7-3.1	Adhesive Oil Spraying Station (Spray-2)	20 % opacity from stack	Monthly visual observation and recordkeeping of visual observations.
45CSR7-4.1	Curing Oven (Oven-2)	PM limit based on process weigh rate	Compliance is assured by using natural gas as the curing oven burner fuel.
45CSR7-4.1	Adhesive Oil Spraying Station (Spray-2)	Pm limit based on process weigh rate	
45CSR10-4.1	Curing Oven (Oven-2)	2.000 ppmv stack emission concentration limit.	Compliance is assured by using natural gas as curing oven fuel.
45CSR27	Entire facility	Plantwide formaldehyde emissions exceed Reg. 27 threshold of 1,000 lb/yr potential;	Installation and operation of BAT controls (CD-1 and CD-3)

Non-Applicable CAA Requirements

Regulatory Citation	Description	Reason for non-applicability
45CSR14	Permits for construction and modification of major stationary sources for the Prevention of Significant Deterioration of Air Quality	Emission increases will be the PSD permitting levels.
45CSR30	Title V operating permits	Sitewide PTE of criteria pollutants and hazardous air pollutants are below permitting levels.
40 CFR 63 subpart SSSSSS	Glass Manufacturing (area sources)	Applies to glass manufacturing plants with continuous furnaces that process urban HAP metals (As, Cd, Cr, Mn, Ni) as raw materials (not including trace materials in non-HAP raw materials such as sand). The facility does not utilize any HAP metals as raw materials.
40 CFR 63 subpart JJJJJJ	Industrial, Commercial, and Institutional Boilers Area Sources	Natural gas fired boilers are exempt from this area source MACT
40 CFR 98	Mandatory Greenhouse Gas Reporting	CO_2 equivalent emissions from combustion sources is less than 25,000 metric tons

ATTACHMENT E – PLOT PLANS



SUPERIOR FIBERS LLC	
DATE: 10/22/2015	DRAWN BY: DS
EXPANSION LAYOUT	REEDSVILLE WV

ATTACHMENT F – PROCESS FLOW DIAGRAM

PROCESS FLOW DIAGRAM

Figure 1 – Glass Melt Furnaces and Associated Glass Fiber Forming Equipment

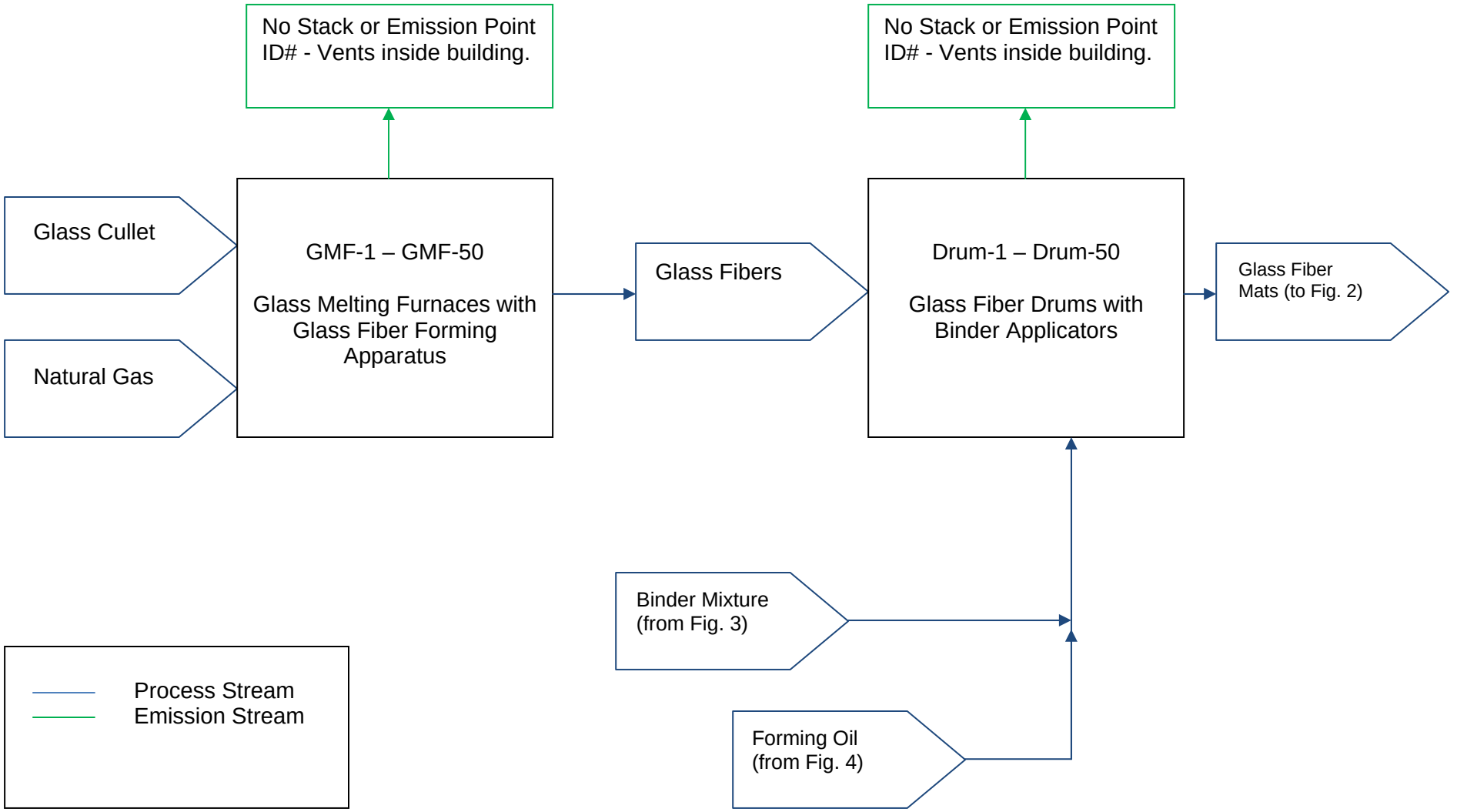


Figure 2a – Curing Oven and Finishing Line Equipment – Line 1

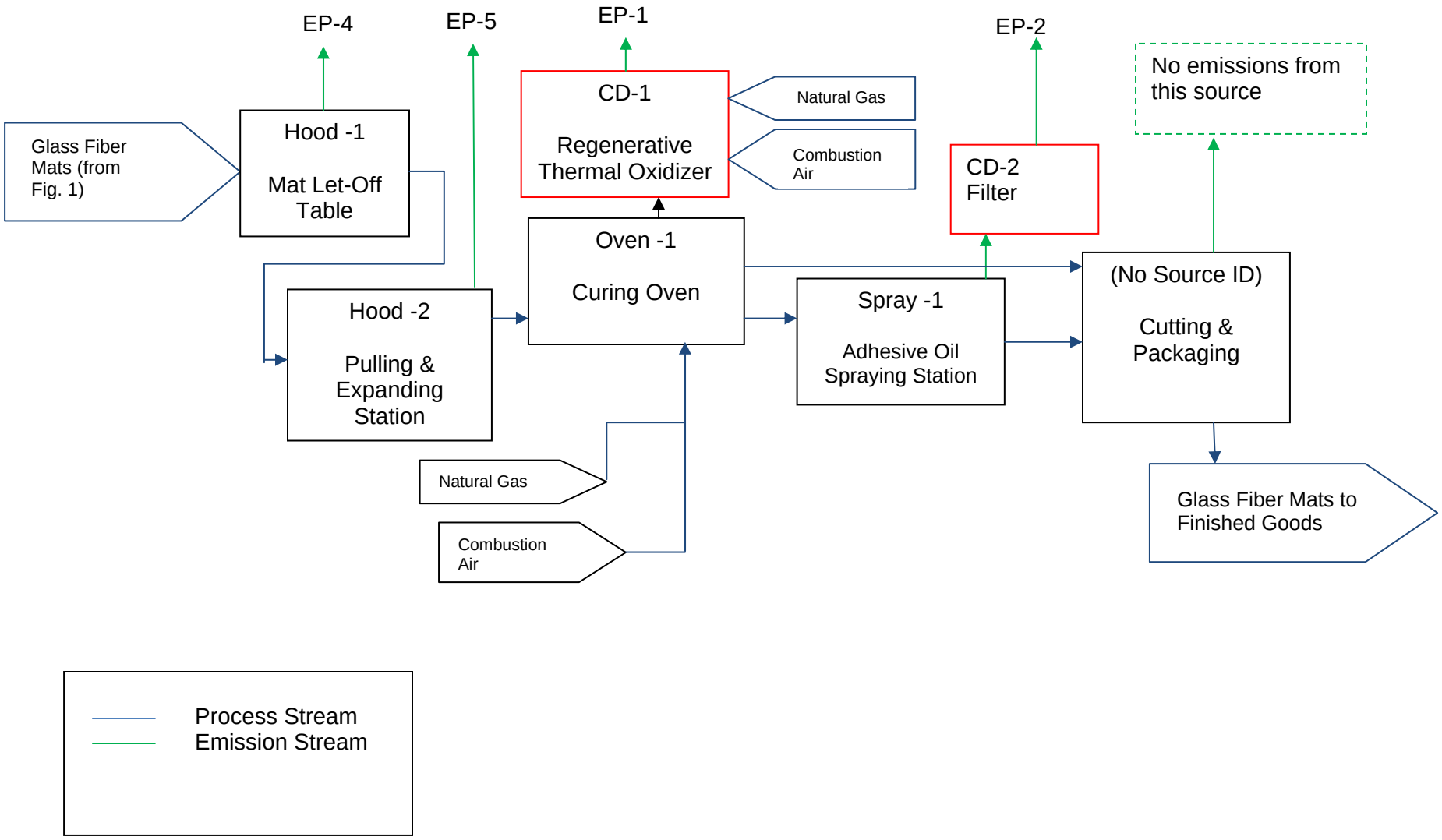


Figure 2b – Curing Oven and Finishing Line Equipment – Line 2

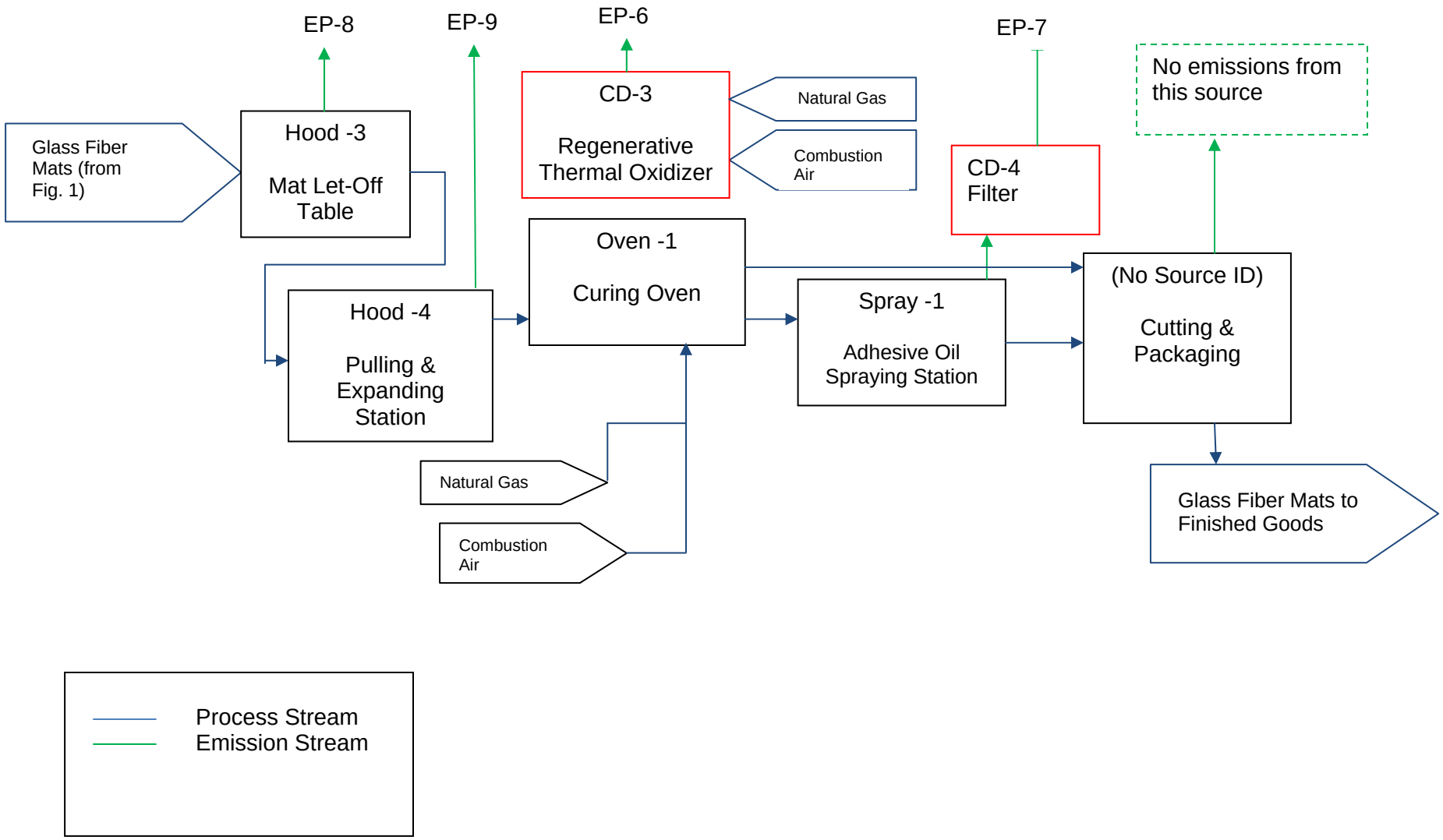


Figure 3 – Binder Mix Tanks and Associated Binder Component Storage Tanks

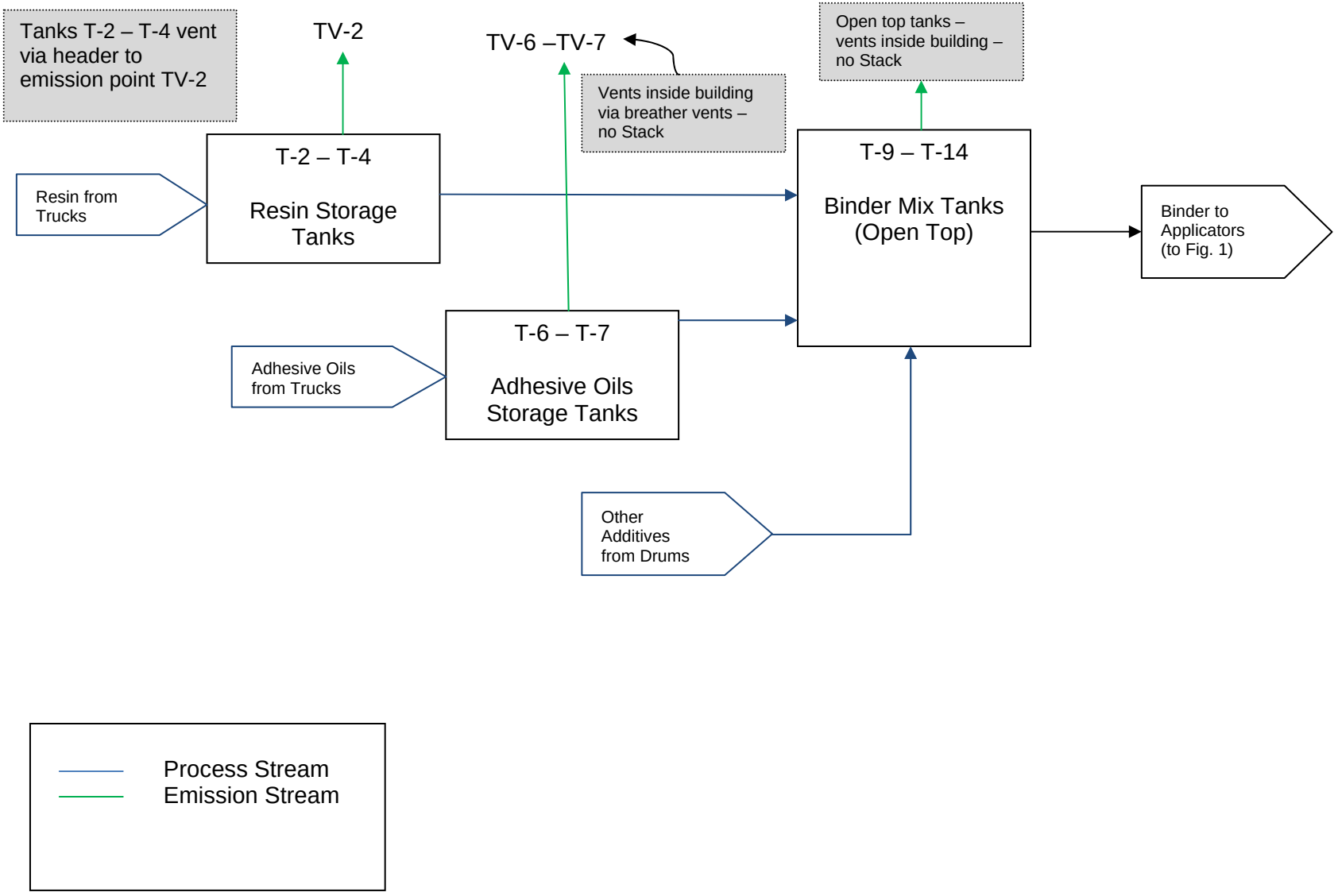
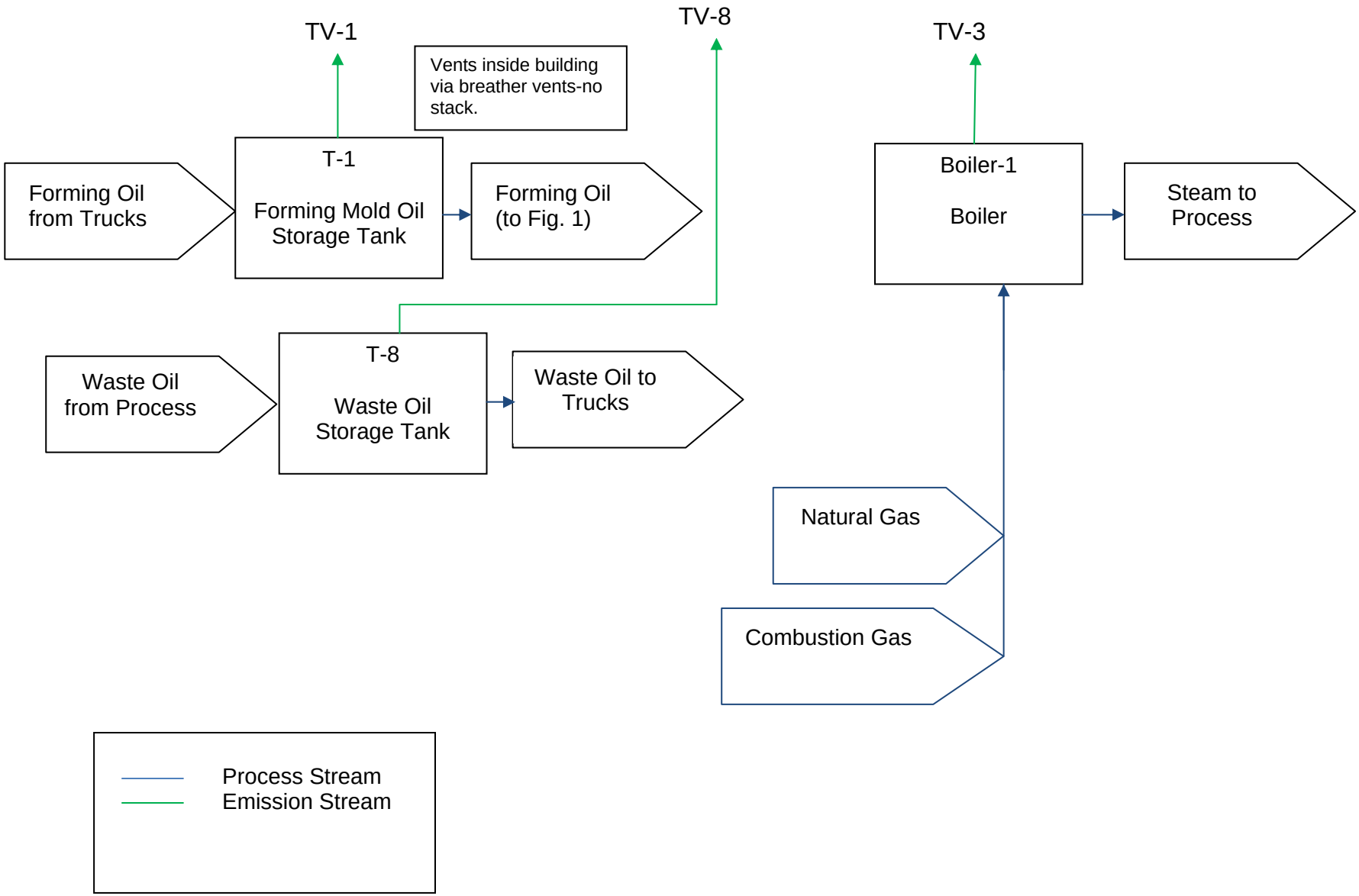


Figure 4 – Boiler and Miscellaneous Storage Tanks



ATTACHMENT G – PROCESS DESCRIPTION

ATTACHMENT G – PROCESS DESCRIPTION

The Superior Fibers – Reedsville Manufacturing Facility melts glass cullet raw material, extrudes glass fibers, applies binder to the glass fibers, and then rolls the glass fibers with binder onto large drum rolls. These rolls are placed in in-process storage at the facility, to wait further processing at a later date, which consists of expanding, curing, trimming, packaging, and shipping to customers.

This facility currently has twenty-eight (28) Glass Melt Furnaces – Glass Fiber Extruding Apparatus (Emission Unit ID# GMF-1 – GMF-28) and Binder Applicator-Glass Fiber Forming Drums (Emission Unit ID# Drum-1 – Drum-28) equipment trains. These equipment items vent inside the production building, and thus do not have any vent/emission point ID# designations. Twenty two more Glass Melt Furnaces-Glass Fiber Extruding Apparatus (Emission Unit ID# GMF-29 – GMF-50) and Binder Applicator-Glass Fiber Forming Drums (Emission Unit ID# Drum-29 – Drum-50) equipment trains are requested in this R13-2501A modification application for planned installation and operation in early first quarter 2016.

The binder applied to the glass fiber consists of varying combinations of water, resin, latex, dye, and/or other additives. The following existing storage tanks and mixing tanks/vessels are used in the process:

- ID# T-1 (vents via breathing vent ID# TV-1 inside building), used to store forming oil which assists in releases of plastic from the rolled glass fiber mats.
- ID# T-2 (vents via header to stack ID# TV-2 to atmosphere), used to store resin.
- ID# T-3 (vents via header to stack ID# TV-2 to atmosphere), used to store resin.
- ID# T-4 (vents via header to stack ID# TV-2 to atmosphere), used to store resin.
- ID# T-6 (vents via breathing vent ID# TV-6 inside building), used to store adhesive oil, such as Hydrocal 900.
- ID# T-7 (vents via breathing vent ID# TV-7 inside building), used to store adhesive oil, such as Reofos 1886.
- ID# T-8 (vents via breathing vent ID# TV-8 inside building), used to store
- ID# T-9 through ID# T-14 are open top mix vessels that vent inside the production building (no vent ID#), used as mixing vessels to mix resin, water, and additives such as dyes and latexes, to blend the desired binder material.

The prepared binder is applied to the glass fiber just after it is extruded from the Glass Melt Furnaces, and just before rolling onto the Glass Fiber Forming Drums, which forms the intermediate glass fiber mat. This unexpanded mat is placed into in-process storage to wait further processing.

The unexpanded glass fiber mats are unrolled on the Mat Let-Off Table (ID# Hood-1, vents via ID# EP-4 to atmosphere), and travels via conveyor to the Pulling & Expanding Station (ID# Hood-2, vents via ID# EP-5 to atmosphere) where the mats are manually pulled/expanded prior to curing. The expanded glass fiber mats are then conveyed

through the Curing Oven (ID# Oven-1, vents to regenerative thermal oxidizer ID# CD-1 to ID# EP-1 vent to atmosphere). The mat is cured at approximately 300° F in the Curing Oven in order to set the binder, which contains thermosetting resin.

After the cured glass fiber mats exit the Curing Oven, the mats are trimmed to the proper width, cut to the desired length, rolled, weighed, and packaged. Some of the cured glass fiber mats are sprayed, prior to trimming and cutting, at the Adhesive Oil Spraying Station (ID# Spray-1, vent ID# EP-2 vent to atmosphere) to add desired filtration properties to certain products.

With the expansion project, an additional Mat Let-Off Table (ID# Hood-3, vents via ID# EP-8 to atmosphere), Pulling & Expanding Station (ID# Hood-4, vents via ID# EP-9 to atmosphere) Curing Oven (ID# Oven-2, vents to new regenerative thermal oxidizer ID# CD-3 to ID# EP-6 vent to atmosphere) and Adhesive Oil Spraying Station (ID# Spray-2, vents via filter (CD-4) to ID# EP-7 vent to atmosphere) will be added to the facility.

ATTACHMENT H – SAFETY DATA SHEETS

ATTACHMENT H – MATERIAL SAFETY DATA SHEETS

The following Material Safety Data Sheets are contained in this application:

Material Type	Manufacturer/Vendor	Product Name	Model#
Glass Cullet	Osram Sylvania Inc.	Soda-Lime Glass	SG80, SG81, & SG91
Additive	Jacaab LLC	Reofos 1886	NA
Resin	Southern Resin Inc.	ResinBond 1174	NA
Resin	Southern Resin Inc.	Amino Resin	NA
Resin	Rohm and Haas / Dow Chemical	Aquaset 110	NA
Additive	BP Amoco Chemical Company	Indopol H-1500, H-1900, H-2100, H-6000, H-18000	NA
Finished Product	Superior Fibers LLC	Glass Fiber Air Filtration Media	NA

SDS-4

MATERIAL SAFETY DATA SHEET

MSDS 3.1
SODA LIME GLASSES

This is an un-maintained copy, destroy after use

I. PRODUCT IDENTIFICATION

Trade Name (as labeled): Soda-Lime Glasses: SG80, SG81 & SG91

Manufactured at one or more of the following locations by OSRAM SYLVANIA INC., Glass Technologies:

1193 Broad Street Central Falls, RI 02863 (401) 723-4100	1000 Tyrone Pike Versailles, KY 40383 (606) 873-7351	1 Jackson Street Wellsboro, PA 16901 (717) 724-8200

II. HAZARDOUS INGREDIENTS

			Exposure Limits in Air (mg/cubic M)	
Chemical Name	(CAS #)	% by wt.	ACGIH (TLV)	OSHA (PEL)
Silica, Amorphous	none	70-80	10 Total Dust	6 Total Dust

Several other ingredients, not identified above, are constituents which are modified into a stabilized glass matrix. Particular elements can be identified by chemical analysis, but they no longer posses the properties of those elements. None of these ingredients is present in quantities that are reportable under 29 CFR 1910.1200, or Section 313 Title III of SARA, or 40 CFR 372. Glass should not be confused with straight blends or mixtures of purchased chemicals.

III. PHYSICAL PROPERTIES

PROPERTY	SODA-LIME GLASSES
Vapor density (air=1)	N/A
Specific gravity (water=1)	2.35
Boiling point or range (degrees C)	N/A
Melting point or range (degrees C)	N/A
Vapor Pressure, nm Hg @ 20 degrees C	N/A
Solubility in water	N/A
Evaporation rate (butyl acetate=1)	N/A
Appearance	Clear Glass
Percent Volatile	N/A
Odor	None
How best monitored	Air Sample

OSRAM SYLVANIA INC.
GLASS TECHNOLOGIES
129 Portsmouth Avenue
Exeter, NH 03833-2105
(603) 778-4527

OSRAM SYLVANIA

This is an un-maintained copy, destroy after use

IV. FIRE & EXPLOSION HAZARDS

Flammability: Non-combustible
Fire extinguishing Materials: Use extinguishing agents suitable for surrounding fire.
Special Firefighting Procedure: Use a self-contained breathing apparatus to prevent inhalation of dust and/or fumes that may be generated during firefighting activities.
Unusual Fire and Explosion Hazards: When exposed to high temperature, toxic fumes may be released.

V. HEALTH HAZARDS

EFFECTS OF OVEREXPOSURES TO DUST, FUME OR VAPOR BY INHALATION, INGESTION, OR CONTACT (SKIN OR EYE):
No fumes or vapor are expected under normal conditions of use.

Amorphous Silica/Glass - Glass cuts are the primary potential hazard of this product. The process by which this product is manufactured changes the physical structure of the silica ingredient from a crystalline to an amorphous form. The dusts produced in cutting or grinding the glass, when in excess of TLV's or PEL's, may result in respiratory irritation and possible lung disease (silicosis); symptoms include coughing, wheezing, and respiratory distress.

EMERGENCY AND FIRST AID PROCEDURES:

Glass Cuts: Perform normal first aid procedures. Seek medical attention as required.
Inhalation: If discomfort, irritation or symptoms of pulmonary involvement develop, remove from exposure and seek medical attention.
Ingestion: In the unlikely event of ingestion of a large quantity of material, seek medical attention.
Contact, Skin: Thoroughly wash affected area with mild soap or detergent and water and prevent further contact. Seek medical attention if irritation occurs.
Contact, Eye: Wash eyes, including under eyelids, immediately with copious amounts of water for 15 minutes. Seek medical attention.

CARCINOGENIC ASSESSMENT (NTP ANNUAL REPORT, IARC MONOGRAPHS, OTHER):
This product has NOT been listed as a suspected or known carcinogen by NTP, IARC, and/or OSHA.

This is an un-maintained copy, destroy after use

VI. REACTIVITY DATA

Stability: Stable
Conditions to Avoid: None
Incompatibility (material to avoid): Hydrofluoric acid and other fluoride compounds and strong alkalies.
Hazardous decomposition products (including combustion products): None
Hazardous polymerization products: Will not occur.

VII. PROCEDURES FOR DISPOSAL OF BROKEN GLASS

Take usual precautions for collection of broken glass. Where necessary, clean up by HEPA vacuum or other method (wet) that avoids dust generation. Place materials in closed containers. It is the responsibility of the waste generator to ensure proper classifications of waste products. To that end, TCLP tests should be conducted on all waste products, including this one to determine the ultimate disposition in accordance with applicable federal, state and local regulations.

VIII. SPECIAL HANDLING INFORMATION - FOR BROKEN GLASS

Ventilation: Use adequate local exhaust ventilation to maintain exposure levels below the PEL or TLV limits when grinding, cutting or heating glass.
Respiratory protection: Use appropriate NIOSH approved respirator if airborne dust concentrations exceed the pertinent PEL or TLV limits. All appropriate requirements set forth in 29 CFR 1910.134 should be met.
Eye protection: Face shield, goggles, or safety glasses, are recommended if glass is being broken.
Protective clothing: Gloves are recommended for dealing with broken glass.

Although OSI attempts to provide current and accurate information herein, OSI makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage or injury of any kind which may result from, or arise out of, the use of/or reliance on the information by any person.

Issue Date: March 9, 1995 Supersedes: March 29, 1993

March 29, 1993 Changed corporate name.
March 9, 1995 Changed to OSI format & loaded on Word

In case of questions, please call the Safety/Environmental Engineer at the following number:

(401) 723-4100
(606) 873-7351
(717) 724-8200

JACAAB LLC

Material Safety Data Sheet

1. PRODUCT/COMPANY IDENTIFICATION

Product Name: Reofos 1886
Product Use: Flame retardant additive
Distributed By: JACAAB LLC
4155 Manchester Ave.
St. Louis, MO 63110

Information Telephone: (314) 652-5400
Emergency Telephone: (800) 424-9300 CHEMTREC

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Weight %	ACGIH TLV
Triaryl phosphate, Isopropylated	Trd Sec	Trd Sec	N/E
Triphenyl phosphate	115866	Trd Sec	N/E

3. HAZARDS IDENTIFICATION

Clear, colorless liquid. No odor. Testing indicates that this product is practically non-toxic although it contains triphenyl phosphate. Mist generated by heat, violent agitation or spraying will irritate skin, eyes, nose, throat and respiratory system.

Potential Health Effects

Eye Contact:
May cause eye irritation.

Skin Contact:
May cause skin irritation.

Inhalation:
May cause respiratory track irritation, mucous membrane irritation and nervous system effects.

Ingestion:
May cause nervous system effects.

Chronic Effects /Carcinogenicity:

Deleted: Direct contact may

Deleted: Direct contact may

Deleted: Not expected to be harmful.¶

Deleted: Not expected to be harmful.¶

Prolonged or repeated exposure may cause neurological disturbances which may progress to delayed neurotoxicity.

4. FIRST AID MEASURES

Eye Contact:
Flush with large volumes of water for at least 15 minutes. Get medical attention.
Skin Contact:
Wash with large volumes of soap and water for at least 15 minutes. Consult a physician if irritation persists.
Inhalation:
Remove person to fresh air. Get medical attention.
Ingestion:
If swallowed, give two (2) glasses of water. Get medical attention promptly.
Notes:
Product has low acute oral and dermal toxicity and may be irritating to the eyes and skin. Treatment is controlled removal or exposure followed by symptomatic and supportive care. Human systemic toxicity information is unavailable, but expected to be low. Neurological evaluation of workers, where no differences were demonstrated between triaryl phosphate esters exposed and control populations, support this conclusion.

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Deleted: Treat the same as ingestion of any oil type material. DO NOT INDUCE VOMITING. If swallowed call a doctor.¶

5. FIRE FIGHTING MEASURES

Flash Point: Approx. 200C/392 F.
Thermal Decomposition Products: Oxides of phosphorus, carbon, acidic chlorides.
Extinguishing media: Dry chemical, foam, carbon dioxide or water fog.
Special Fire Fighting Procedures: Wear full protective equipment and self-contained breathing apparatus to prevent skin and eye contact in fire situations.
Unusual Fire and Explosion Hazards: Under fire conditions, toxic and irritating fumes may be generated.
Flammability Classification: Slightly combustible.

Deleted: Temperature: N/A.

Deleted: Heating of unvented containers

Deleted: cause explosion

6. ACCIDENTAL RELEASE MEASURES

Contain spill; prevent material from flowing into waterway. Use inert type absorbent and place into approved labeled disposal container. Wear appropriate personal protective equipment.

Deleted: Drynite

Deleted: shovel

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7. HANDLING AND STORAGE

Use appropriate personal protection equipment. Avoid eye, skin and clothing contact. Do not breathe mist or vapors. Avoid repeated and prolonged contact. Use only in a well ventilated area. Store and handle away from any product involved in food processing. Avoid the generation of aerosols from spraying, pouring or vigorous agitation whenever possible, particularly if product is heated. Store in a cool, dry, well-ventilated area away from incompatible materials. Protect containers against damage. Keep containers tightly closed.

Deleted: Don not store near open flame or heat source.¶

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Local exhaust ventilation if heating and/or misting is expected; otherwise, general ventilation is adequate.
Personal Protective Equipment: Clothing adequate to prevent contact and chemical resistant Chemical goggles, butyl or polyethylene gloves is recommended.
Respirator: When misting and heating can occur, an organic cartridge respirator should be worn.
Eye/Face: Chemical safety goggles or full face shield are recommended.
Protective Clothing: Recommend butyl (heavy duty) or polyethylene (light duty) gloves. Clothing designed to minimize skin contact. Wear an apron or impervious clothing and rubber boots if splashing is expected. Wash hands after use to prevent accidental swallowing.
Exposure Limit Guidelines:
None Established. Wash thoroughly after handling. Wash contaminated clothing before reuse.

Deleted: No specific controls or local
Deleted: are required.
Deleted: None required.
Deleted: Respirator: For decomposition product-wear self-contained breathing apparatus.¶

9.PHYSICAL AND CHEMICAL PROPERTIES

Physical State, Color and Odor: Clear, colorless liquid, No odor.
Specific Gravity: 1.15 – 1.165 at 20 C.
Melting Point: Not Available.
Boiling Point: 220-265 C/428-509 F at 4mmHg
Flash Point: 200C / 392 F COC
Vapor Pressure (150 C.): 0.01 mmHg
Vapor Density (20 C.): >1
Water Solubility (20 C.): Insoluble.
Freezing Point: <40 degrees C
Viscosity (25 C): 3500 – 4500 cps

Deleted: , light amber gel.
Deleted: /A.

10.STABILITY AND REACTIVITY

Stability: Stable Material.
Hazardous Polymerization: Will not occur.
Incompatibles: Strong oxidizers.
Conditions to Avoid: None.
Hazardous Decomposition Products: Oxides of phosphorus, Phosphorous, Carbon Dioxide, Carbon Monoxide, Oxides of Silicon.

Deleted: None known.

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11. TOXICOLOGICAL INFORMATION

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Acute Inhalation:	>200 mg/L	Rat
Acute Dermal	>2,000 mg/kg	Rat
Acute Oral	>5,000 mg/kg	Rat

Based on similar products, this material exhibits low oral and dermal toxicity. This product should not be used in conjunction with Trimethylolpropane or

Trimethylolpropane derived products unless tested to determine their decomposition toxicity.

12. ECOLOGICAL INFORMATION

Do not release to waterways or the environment.
LC50 in rainbow trout (96H) = 1.6 (1.2-2.2) mg/L
LC50 in fathead minnow (96H) = 10.8(8.0-14.6) mg/L
EC50 in Daphnia magna (48H) = 2.44(1.93-3.08) mg/L

13. DISPOSAL INFORMATION

Dispose of wastes in accordance with applicable Federal, State, and local regulations. Under the Resource Conservation and Recovery Act (RCRA) regulations, it is the responsibility of the user to determine whether the material should be classified as a hazardous waste.

14. TRANSPORTATION INFORMATION

DOT Proper Shipping Name: Not regulated for transportation. Environmentally hazardous substance, liquid, n.o.s. (Contains Triaryl phosphate, isopropylated and triphenyl phosphate)
Hazard Class: 9 **ID Number:** UN3082 **Packing Group:** III
Label: Misc.and Marine Pollutant mark.
Air-ICAO or IATA: Same as DOT, Packing Instruction 914.

15. REGULATORY INFORMATION

TSCA Inventory: All components are listed.
OSHA Hazardous: Yes
SARA 311/312 Hazards: Acute: Yes, Chronic: Yes, Fire: No, Reactive: No, Pressure: No
WHMIS Classification: Not controlled.

16. OTHER INFORMATION

Labeling :
HMIS Codes: H=1, F=1, R=0 **Scale:** 0=Least →4 =Extremely Severe.

Abbreviations:
ACGIH-American Conference of Governmental Industrial Hygienists
CERCLA-Comprehensive Environmental Protection Act
CFR-Code of Federal Regulations
CHEMTREC-Chemical Transportation Emergency Center
DOT-U.S. Department of Transportation
HMIS-Hazardous Materials Identification System
IARC-International Agency for Research on Cancer
IATA-International Air Transport Association
ICAO-International Civil Aviation Organization
IMDG-International Maritime Dangerous Goods
MSHA-Mine Safety and Health Administration

Deleted: Eye irritation (Animal): No Information.¶
Skin irritation (Rabbit): No Information. ¶
Skin Irritation (Human): No Information.¶

Deleted: No information available.¶

Deleted: Not regulated as a hazardous material or hazardous substance by DOT, IMO, or ICAO.¶

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N.E. - Not Established
NFPA-National Fire Protection Association
NIOSH-National Institute for Occupational Safety and Health
NTP-National Toxicology Program
OSHA-Occupational Safety and Health Administration, PEL-Permissible Exposure Limit
RCRA-Resource Conservation and Recovery Act
SARA-Superfund Amendment Reauthorization Act, TLV-Threshold Limit Value
TLV-Threshold Limit Value (based on 8 hr. exposure)
TSCA-Toxic Substance Control Act

Disclaimer: This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of JACAAB LLC. The data on this sheet relate only to the specific material designated herein. JACAAB LLC. assumes no legal responsibility for use or reliance upon these data.

Southern Resin, Inc.

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFIER:	**ResinBond 1174**
PRODUCT CODE:	**1174**
CHEMICAL FAMILY:	**Aqueous dispersion of amino resin**
RECOMMENDED USES:	**Industrial Uses**
RESTRICTIONS ON USE:	**None**
MANUFACTURER:	**SOUTHERN RESIN, INC**
ADDRESS:	3440 Denton Road Thomasville, N.C. 27360 (336) 475-1348
EMERGENCY PHONE:	**CHEMTEL** **(800) 255-3294** **(336) 475-1348**

SECTION 2: HAZARD(S) IDENTIFICATION

Please see Section 3 and 15 for country specific classification information, and Section 11 for additional details.

Hazard Classification according to 29 CFR 1910.1200

Not hazardous according to 29 CFR 1910.1200

Labeling

Pictograms
None

Signal Word
None

Hazard Statements
None

Precautionary Statements
None

Hazards Not Otherwise Classified

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

There are no hazardous ingredients according to 29 CFR 1910.1200

INGREDIENT NAME:	CAS NO.	Conc. (% w/w)	GHS Classification
Amino formaldehyde resin	Proprietary	50 - 75	Not Hazardous
Formaldehyde	50-00-0	<0.1	

Note: See section 8 for occupational exposure limits and section 11 for LC50/LD50 information

SECTION 4: FIRST AID MEASURES

SYMPTOMS/EFFECTS

EYES:	Rinse immediately with plenty of water for at least 15 minutes or until the chemical has been removed. If irritation persists, obtain medical attention immediately.
SKIN:	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Consult a physician if necessary.
INGESTION:	DO NOT induce vomiting. If affected person is fully conscious, give one glass of water to drink. Never give anything by mouth to an unconscious person. Consult a physician if necessary.
INHALATION:	Remove to fresh air. If breathing is difficult, give oxygen. Consult a physician if necessary.

Most Important Effects

Acute	Possible irritation to skin and eyes.
Delayed	No known long term symptoms of exposure.

SPECIAL TREATMENT

None

SECTION 5: FIRE FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA:	Material does not burn. Use CO_2, dry chemical or foam or whatever is suitable for the source of the fire.
UNSUITABLE EXTINGUISHING MEDIA:	N/A
SUITABLE FIRE FIGHTING EQUIPMENT:	Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
FIRE AND EXPLOSION HAZARDS:	Heating or fire can release toxic gas
HAZARDOUS DECOMPOSITION PRODUCTS:	Decomposition products may include the following materials: Carbon dioxide Carbon monoxide Acetic acid

SECTION 6: ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES	Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away.
PERSONAL PRECAUTIONS:	Use suitable protective equipment (section 8). Follow all fire-fighting procedures (section 5). Do not touch or walk through spilled material.
PROTECTIVE EQUIPMENT	Wear suitable personal protective equipment including hand and eye/face protection and suitable clothing for the task being performed.
ENVIRONMENTAL PRECAUTIONS AND CLEAN-UP METHODS	Prevent entry into waterways, sewers, or confined areas. Do not allow material to contaminate ground water system. For small spills, add absorbent and a non-sparking or explosion-proof means to transfer material to a sealable appropriate container for disposal. For large spills, dike spilled material, or otherwise contain material to ensure runoff does not reach a waterway.

SECTION 6 NOTES: See section 1 for emergency contact information and section 13 for waste disposal

SECTION 7: HANDLING AND STORAGE

HANDLING:	Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor or mist. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling.
STORAGE:	Keep container in a well ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).
INCOMPATIBLE	None

MATERIALS

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS

Ingredient name	CAS Number	OEL United States
Formaldehyde	50-00-0	ACGIH TLV – 0.3 ppm ceiling OSHA – 0.75 ppm OSHA STEL – 2 ppm
Amino formaldehyde resin	Proprietary	None established

ENGINEERING CONTROLS: Provide exhaust ventilation or other engineering controls to minimize exposure to airborne particles or vapors.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY SYSTEM	Use appropriate respiratory protection to minimize risk of exposure to airborne particles/vapor or mist. A respirator may be necessary for sensitive populations or for process that generate high levels of airborne particles.
EYES	Safety Goggles are considered minimum protection. Goggles with a face shield may be necessary depending on quantity of material and conditions of use. Contact lenses should not be worn when working with this chemical.
SKIN & BODY	Where contact is likely, wear chemical resistant gloves, a chemical resistant suit and boots. Additional body garments should be used based upon the task being performed.
HANDS	Hand Protection: Wear chemical resistant gloves. Nitrile gloves of minimum thickness >0.5 mm is recommended. Replace gloves immediately when torn or any change in appearance (dimension, color, flexibility, etc.) is noticed.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Clear milky colored liquid
ODOR	Slight formaldehyde odor
ODOR THRESHOLD	N/A
PH	7 – 7.6
MELTING POINT/FREEZING POINT;	Not Determined
INITIAL BOILING POINT AND BOILING RANGE	Not Determined
FLASH POINT	>212 °F, (>100 °C)
EVAPORATION RATE;	Slower than ether
FLAMMABILITY (SOLID, GAS)	Not Determined
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	Not Determined

VAPOR PRESSURE	N/A
VAPOR DENSITY	Not Determined
RELATIVE DENSITY	~ 1 g/mL
SOLUBILITY(IES)	Moderate
PARTITION COEFFICIENT: N-OCTANOL/WATER	Not Measured
AUTO-IGNITION TEMPERATURE	N/A
DECOMPOSITION TEMPERATURE	N/A
VISCOSITY	Not Determined

SECTION 10: STABILITY AND REACTIVITY

STABILITY:	Stable under recommended storage conditions
CONDITIONS TO AVOID (STABILITY):	Heat, flames and sparks. Take precautionary measures against static charges and avoid exposure to light.
INCOMPATIBILITY (MATERIAL TO AVOID):	Radical forming initiators, peroxides, strong alkalis or reactive metals to prevent exothermic polymerization.
HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:	Incomplete combustion and thermolysis produces potentially toxic gases such as carbon monoxide and carbon dioxide.
HAZARDOUS POLYMERIZATION:	None known

SECTION 11: TOXICOLOGICAL INFORMATION

Routes of entry:	Skin, Eyes, Ingestion, and Inhalation
Acute Toxicity (Oral)	No data available
Acute Toxicity (Inhalation)	No data available
Acute Toxicity (Dermal)	No data available
Inhalation/Corrosion of the skin	May be slightly irritating
Serious eye damage/eye irritation	No data available
Respiratory/skin sensitization	No data available
Repeated dose toxicity	No data available
<u>CMR assessment</u>	
Carcinogenicity	No data available
Mutagenicity	No data available
Teratogenicity	No data available
Toxicity to reproduction	No data available
Genotoxicity in vitro	No data available
Genotoxicity in vivo	No data available
Carcinogenicity	This product contains component(s) that are listed on one or more of the following lists: NTP, IARC, ACGIH, or OSHA as a carcinogen (formaldehyde)
Reprotoxicity/Development/ Teratogenicity	No data available
Specific Target Organ Toxicity - Single exposure	No data available
Specific Target Organ	No data available

Toxicity - Repeated exposure	
Aspiration hazard	**No Aspiration toxicity classification**
Other information	**None**

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicology Assessment

Acute aquatic toxicity	**No data available**
Chronic aquatic toxicity	**No data available**

12.1. Toxicity

Aquatoxicity, fish	**No data available**
Aquatoxicity, invertebrates	**No data available**
Aquatoxicity, algae / aquatic plants	**No data available**
Toxicity in : microorganisms	**No data available**
chronic toxicity in fish	**No data available**
Chronic toxicity in aquatic invertebrates	**No data available**
Toxicity in organisms which live in the soil	**No data available**
Toxicity in terrestrial plants	**No data available**
Toxicity to Above-Ground Organisms	**No data available**

12.2. Persistence and degradability

Photodegradation	**No data available**
Biological degradability	**No data available**
Physico-chemical emovability	**No data available**
Biochemical Oxygen Demand (BOD)	**No data available**
Chemical Oxygen Demand (COD)	**No data available**
Relation of BOD/COD	**No data available**
Dissolved organic carbon (DOC)	**No data available**
Adsorbed organic bound halogens (AOX)	**No data available**
Distribution among environmental compartments	**No data available**

12.3. Bioaccumulative potential

Bioaccumulation	**No data available**

12.4. Mobility in soil

Environmental distribution	**No data available**

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment	**No data available**

12.6. Other adverse effects

General information	**Do not allow to enter water ways or soil**

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD:	**Dispose of contents/container in accordance with local and national regulations. Contents should not be released into the environment.**
CONTAMINATED PACKAGING:	**Empty containers should be taken to an approved waste handling site for recycling or disposal.**

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION

UN NUMBER: NOT REGULATED
PROPER SHIPPING NAME:
HAZARD CLASS:
PACKING GROUP:
LABEL STATEMENT:

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

TSCA (TOXIC SUBSTANCE CONTROL ACT): All components are listed on or exempt from TSCA

CERCLA: HAZARDOUS SUBSTANCES: Formaldehyde (RQ 100 lbs)

313 TOXIC CHEMICAL AND RELEASE REPORTING Formaldehyde

311/312 HAZARD CATEGORIES: Immediate (acute) health hazard, delayed (chronic) health hazard

313 REPORTABLE INGREDIENTS: Formaldehyde (RQ 500 lbs)

STATE REGULATIONS

CA Prop 65: WARNING: This product may contain a chemical known to the State of California to cause cancer and birth defects. Formaldehyde

STATE RIGHT-TO KNOW

Component	CAS	MA	NJ	PA
N/A				

SECTION 16: OTHER INFORMATION

HAZARDOUS MATERIAL INFORMATION SYSTEM:(USA)

Health	2
Fire Hazard	1
Reactivity	1
Personal Protection	D

Refer to Section 8 for additional information on appropriate personal protection equipment

Date of Issue: February 4, 2014

Revision Number: 1
Date of Revision: February 4, 2014

Reasons for Revision: New Product SDS

Notice to reader: Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

MATERIAL SAFETY DATA SHEET

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor "Essentially Similar" to Form OSHA-20)

DATE OF PREP: JUNE 2006

SECTION I

MANUFACTURER'S NAME:	SOUTHERN RESIN, INC.
STREET ADDRESS:	2449 DENTON ROAD THOMASVILLE, NC 27360
TELEPHONE #	336-475-1348
EMERGENCY TELEPHONE #	1-800-255-3924 MANUFACTURER'S CODE IDENTIFICATION
PRODUCT CLASS:	AQUEOUS DISPERSION OF AMINO RESIN REBOND 01178
TRADE NAME	REBOND

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	EXPOSURE LIMITS	LEL	VAPOR PRESSURE
Formaldehyde (HCOH) CAS 050-00-0	<0.5	0.75 ppm TWA 2.0 ppm STEL	NR	Not Available
(No formaldehyde is detectable at 0 Celsius using sodium sulfite titration method)				

SECTION III - PHYSICAL DATA

BOILING RANGE: 99° - 102°C. (209° - 216°F.) VAPOR DENSITY X HEAVIER _ LIGHTER THAN AIR

EVAPORATION RATE _ FASTER X SLOWER THAN ETHER PERCENT VOLATILE BY VOLUME 39% WEIGHT PER GALLON: 11 LBS.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

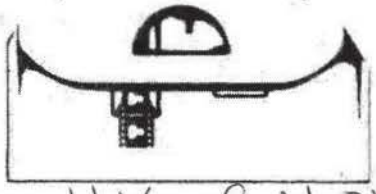
DOT CATEGORY: ADHESIVE, NOSN FLASH POINT NA LEL NA

EXTINGUISHING MEDIA: NA

UNUSUAL FIRE AND EXPLOSION HAZARDS: Exposure of closed containers to flames or heat may result in rupture of containers with release of Formaldehyde (HCOH) fumes. Exposures above established limits could occur and may necessitate emergency respiratory protection.

SPECIAL FIRE FIGHTING PROCEDURES: Use water to keep fire-exposed containers cool. Wear full protective clothing for protection in case of container rupture.

The information contained herein is furnished without warranty of any kind, except that it is accurate to the best knowledge of the manufacturer or obtained from sources considered to be reliable and the manufacturer does not assume any legal responsibility for the use or reliance upon same. Employers should use this information along with their own determinations to assure a good job and the safety and health of employees.



SECTION V - HEALTH HAZARD DATA

EXPOSURE LIMITS. Formaldehyde gas - OSHA PEL - 0.75 ppm TWA, 2 ppm STEL

EFFECTS OF OVEREXPOSURE.

ACUTE EFFECTS. Formaldehyde and solutions containing Formaldehyde are highly irritating to the eyes, skin and respiratory tract. Repeated or prolonged skin exposures may cause future allergic reactions. Inhalation of formaldehyde in concentrations above 25 to 30 ppm may cause respiratory tract injury or death.

CHRONIC EFFECTS: Exposure to high concentrations of formaldehyde has caused cancer in laboratory animals. Formaldehyde may be a potential cancer hazard in human beings.

EMERGENCY AND FIRST AID PROCEDURES: Flush contaminated skin and eyes with water; warm water will be most effective. In case eye irritation persists after several minutes of flushing, or in case of extreme inhalation of vapors, obtain medical attention.

SECTION VI - REACTIVITY DATA

STABILITY _ UNSTABLE: X STABLE CONDITIONS TO AVOID: Heat and Flames.

INCOMPATABILITY (Materials to avoid): Acids and ammonium salts of strong acids

HAZARDOUS DECOMPOSITION PRODUCTS: Formaldehyde (HCOH) vapor upon exposure to heat

HAZARDOUS POLYMERIZATION: X MAY OCCUR _ WILL NOT OCCUR

CONDITIONS TO AVOID. Contact with strong acids.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED. Trap and collect spills with sand or other inert solids.

WASTE DISPOSAL METHOD: Disposal may be in landfill according to local, state and federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Use an approved gas mask in un-ventilated areas if necessary because of fumes. Make certain mask is labeled specific for formaldehyde (HCOH) vapors.

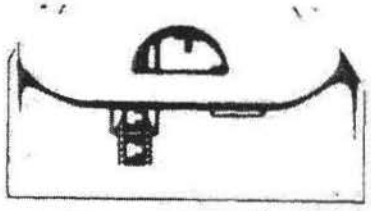
VENTILATION. If natural ventilation is inadequate, mechanical ventilation should be provided by fans in open area, or by exhaust-type ventilation in closed areas.

PROTECTIVE EQUIPMENT OF CLOTHING REQUIRED. Goggles, rubber gloves and clothing that is impervious to liquid may be required to prevent contact with eyes or skin.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store in cool location, out of sunlight. If in drums, store with bungs up and protected from mechanical damage.

OTHER PRECAUTIONS:



SDS-5

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

AQUASET™ 110

Revision Date: 12/16/2011

Supplier

ROHM AND HAAS CHEMICALS LLC
A Subsidiary of The Dow Chemical Company
100 INDEPENDENCE MALL WEST
PHILADELPHIA, PA 19106-2399 United States

For non-emergency information contact: 215-592-3000

Emergency telephone number
1 800 424 9300

Local emergency telephone number
989-636-4400

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2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Polycarboxylate	Not Hazardous	35.0 - <= 37.0 %
Residual monomers	Not Required	< 0.01 %
Polyhydric alcohol	Not Hazardous	9.0 - <= 11.0 %
Water	7732-18-5	54.0 - <= 56.0 %

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Form	liquid Clear to hazy
Colour	Colorless to amber
Odour	Acrylic odor

Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment.
Keep people away from and upwind of spill/leak.
Material can create slippery conditions.

Environmental precautions
CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Methods for cleaning up
Contain spills immediately with inert materials (e.g., sand, earth).
Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Handling
Monomer vapors can be evolved when material is heated during processing operations. See SECTION 8, for types of ventilation required.

Storage
Further information on storage conditions: Keep from freezing - product stability may be affected. STIR WELL BEFORE USE.
Storage temperature: 1 - 49 °C (34 - 120 °F)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit(s)

Exposure limits are listed below, if they exist.

	Regulation	Type of listing	Value
Product	Rohm and Haas	TWA Respirable fraction.	0.5 mg/m3

Exposure controls
Engineering measures: Use local exhaust ventilation with a minimum capture velocity of 150 ft/min. (0.75 m/sec.) at the point of dust or mist evolution. Refer to the current edition of "Industrial Ventilation: A Manual of Recommended Practice" published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

Protective measures: Facilities storing or utilizing this material should be equipped with an eyewash facility.

Hazardous reactions	None known. Stable However, avoid temperatures above 230C/446F, the onset of polymer decomposition. Thermal decomposition is dependent on time and temperature.
Materials to avoid	There are no known materials which are incompatible with this product.
Hazardous decomposition products	Thermal decomposition may yield acrylic monomers.,
polymerisation	Product will not undergo polymerization.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.
No data are available for this material. The information shown is based on profiles of compositionally similar materials.

Acute oral toxicity	LD50 rat > 5,000 mg/kg
Skin irritation	rabbit slight irritation
Eye irritation	rabbit slight irritation
Subchronic toxicity	A 13 week inhalation study in rats of a compositionally similar polycarboxylate material showed inflammatory effects in the lung at concentrations of 5 mg/m3 for 6 hours per day, 5 days per week. The no-observed-effect-level for this response was judged to be 1 mg/m3. Maintaining airborne concentrations within the recommended exposure limit is not expected to produce adverse effects within the lung.

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.
There is no data available for this product.

The Environmental Toxicity data are for a compositionally similar material.

Ecotoxicity effects

Toxicity to fish	LC50 Oncorhynchus mykiss (rainbow trout) 96 Hour OECD Test Guideline 203 >1,000 mg/l

H20 of H31

United States TSCA Inventory (US.TSCA): All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

Pennsylvania
Any material listed as "Not Hazardous" in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

16. OTHER INFORMATION

HMIS Hazard Rating

Health	Fire	Reactivity	Physical Hazard	PPE
1	0	0		

Legend

ACGIH	American Conference of Governmental Industrial Hygienists
BAc	Butyl acetate
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
STEL	Short Term Exposure Limit (STEL):
TLV	Threshold Limit Value
TWA	Time Weighted Average (TWA):
|	Bar denotes a revision from prior MSDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Version: 1.1
Print Date: 06/26/2013

Layout 101179938

Material Safety Data Sheets (MSDS) for the product(s) you ordered from Rohm and Haas Company are enclosed.

By means of the Rohm and Haas automated MSDS distribution system, you will receive new MSDS for these products if there are any revisions within the next year. You will also receive new copies of these MSDS annually if you are a regular purchaser of these products.

It is important that these MSDS are made available to all those who handle or use these products. We wish to assist you in this effort. If there are specific individuals in your organization who are in a better position to provide effective hazard communication as required under the OSHA Standard, please send us their address information. Subsequent mailings will include these individuals.

SUPERIOR FIBERS LLC
ROUTE 92
REEDSVILLE, West Virginia 26547-0000
UNITED STATES
0001741746 / PB

26 June 2013

As part of our Product Stewardship Program, we provide MSDS in conformance with the OSHA Hazard Communication Standard and/or state regulations. However, you may note that not all our products are considered hazardous under the Standard. Nevertheless, these MSDS provide you and your employees with important information concerning the safe handling, use, and disposal of these products.

You may be required to submit this MSDS and others that you receive to state and local emergency response organizations (SERC and LEPC) and to your local fire department. This requirement stems from the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA). In addition, the product may contain a chemical which is subject to the requirements of Section 313 of EPCRA. If a product contains one or more of these materials, they will be identified in Section 15 of the MSDS. These laws requires certain manufacturers to report their annual releases (as defined by the regulations) of specified chemicals listed in Section 313. You may be covered by other parts of the law, depending on which chemicals and the amount of the chemicals that you have at your facility. EPCRA includes the following basic requirements for facility operators:

Facilities that manufacture, process and use hazardous substances listed by the Environmental Protection Agency (EPA) in excess of designated quantities must:

- Provide emergency notification of releases;
- Submit inventory forms to the SERC, LEPC, and local fire departments;
- Submit emissions information to EPA and SERC; and
- May face penalties for noncompliance.

To assist you in complying with the U.S. Toxic Substances Control Act (TSCA), the inventory status is identified in Section 15 of the product's MSDS. If Section 15 of our MSDS cites a TSCA R&D Exemption, then:

- One or more of the constituents in our products are not listed on the TSCA inventory.
- This product may not be put into materials or devices that are placed into commerce.
- This product is provided solely for research and development (R &D) activities in accordance with regulations issued by the U.S. EPA (40 CFR 720.36 and 720.78).

These regulations require, in part, that the substance be used:

1. Solely for research and development purposes.
2. Under direction of technically qualified individuals.
3. Following documented prudent laboratory handling practices (29 CFR 1910.1450).

You may learn more about these requirements by calling the EPA Hotline 800-424-9346.
We appreciate your business and continue to strive to provide you with high quality products and effective information for their safe use.

Hazard Communication Department
Rohm and Haas Company

Poly-B Additive

JUS-6

#10

Material Safety Data Sheet

bp

1. Chemical Product and Company Identification

Product name	INDOPOL® H-1500, H-1900, H-2100, H-6000, H-18000
MSDS#	0000000012
Historic MSDS#:	01224, 01225 (Amoco), PB001 (BP)
Product Use	Fuel additive. Sealants. Coatings. Lubricants. Cling film. Adhesives.
Supplier	BP Amoco Chemical Company 150 West Warrenville Road Naperville, Illinois 60563-8460 USA Tel: 1 (877) 701-2726
EMERGENCY HEALTH INFORMATION:	1 (800) 447-8735
EMERGENCY SPILL INFORMATION:	1 (800) 424-9300 CHEMTREC (USA)
OTHER PRODUCT INFORMATION	1 (866) 4 BP - MSDS (866-427-6737 Toll Free - North America) email: bpcares@bp.com

2. Composition / information on ingredients

Ingredient Name	CAS #	% by Weight	Exposure Limits
Polybutene (Isobutylene/butene copolymer)	9003-29-6	100	None assigned.

3. Hazards identification

Physical state	Liquid.
Color	Clear. Colorless.
Emergency Overview	CAUTION!
	Slightly irritating to the eyes.
	Use only with adequate ventilation. Wash thoroughly after handling. Avoid contact with eyes.
Routes of Entry	Skin contact. Eye contact. Inhalation. Ingestion.
POTENTIAL HEALTH EFFECTS	
Eyes	Slightly irritating to the eyes. Heated material can cause thermal burns.
Skin	Repeated exposure may cause skin dryness or cracking. Heated material can cause thermal burns.
Inhalation	Exposure to aerosols or particulates from heated material may cause adverse lung effects if high concentrations are inhaled.
Ingestion	Ingestion may cause gastrointestinal irritation and diarrhea.
Medical Conditions Aggravated by Overexposure:	Repeated or prolonged exposure is not known to aggravate medical condition.

See Toxicological Information (section 11)

4. First-aid measures

Eye Contact	Hot material: Flush eyes with plenty of water for at least 15 minutes. Seek medical assistance for mechanical removal of this material from the eye. The use of flush fluid, other than water, is not recommended. Cold material: flush eyes with plenty of water.
Skin Contact	Hot material: Immediately flush with cool water for at least 15 minutes. Get immediate medical attention. Cold material: Clean exposed skin with waterless hand cleaner.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.Get medical attention if symptoms appear.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately.
Notes to Physician	Medical personnel may leave the material in place to minimize physical damage to the skin. Medical personnel may cover the material with a burn gel to prevent the adhesion of the dressing to the material.

5. Fire-fighting measures

Flammability of the Product	May be combustible at high temperature.
Flash point	>250 °C (OPEN CUP) Cleveland. 170 to 180 °C (CLOSED CUP) Pensky-Martens.
Products of Combustion	These products are carbon oxides (CO, CO2).
Unusual fire/explosion hazards	Rapid depolymerization can occur in a fire to produce flammable vapors. Non-explosive in presence of open flames, sparks and static discharge, of shocks, of heat, of oxidizing materials.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet. Cool closed containers exposed to fire with water.
Protective Clothing (Fire)	Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

6. Accidental release measures

Personal Precautions	Immediately contact emergency personnel. Keep unnecessary personnel away. Do not touch or walk through spilled material. Use suitable protective equipment (Section 8). Follow all fire fighting procedures (Section 5).
Environmental Precautions and Clean-up Methods	If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) scoop up material and place in a sealed, liquid-proof container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Avoid contact of spilled material and runoff with soil and surface waterways. Keep out of waterways. Treat as an oil spill. Insoluble in water.Place spilled material in an appropriate container for disposal. See Section 13 for Waste Disposal Information.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

7. Handling and storage

Handling	Avoid breathing vapors or spray mists. Adequate ventilation should be provided if there is risk of aerosol formation. Keep away from sources of ignition. Ground all equipment containing material. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose containers to heat or sources of ignition. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Wash thoroughly after handling. Avoid prolonged or repeated contact with skin. Avoid contact with eyes. Empty containers may contain harmful, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld, reuse or dispose of containers unless adequate precautions are taken against these hazards.

Storage	Store in a segregated and approved area. A potentially flammable atmosphere may be generated if material is held hot for prolonged periods. For prolonged storage at temperatures of 60C and above, keep in rust-free tanks and exclude oxygen by use of a nitrogen blanket. Heating systems which generate localized hot spots should never be used. Suitable storage materials are: mild steel / carbon steel. Store and use away from heat, sparks, open flame, or any other ignition source. Keep container tightly closed in a cool, well-ventilated place.

8. Exposure controls/personal protection

Occupational Exposure Limits

Ingredient Name	Occupational Exposure Limits
Polybutene (Isobutylene/butene copolymer)	None assigned.

Control Measures	Use only with adequate ventilation. Avoid breathing vapor or mist. Wear appropriate respirator when ventilation is inadequate. Ensure that eyewash stations and safety showers are proximal to the work-station location.
Hygiene measures	Wash hands after handling compounds and before eating, smoking, using lavatory, and at the end of day.
Personal Protection	
Eyes	Safety glasses with side shields. Goggles, face shield, or other full-face protection if potential exists for direct exposure to aerosols or splashes, or when material is handled hot.
Skin and Body	Wear apron or coverall if potential for exposure to splashes. When handling hot material, wear heat resistant protective gloves, clothing and face shield that are able to withstand the temperature of the heated product.
Respiratory	Respiratory protection is not normally required. If heated and ventilation is inadequate, use respirator which will protect against organic vapor and dust/mist.
Hands	Gloves: Protective gloves should be worn under normal conditions of use. (Nitrile gloves.) When handling hot material, wear heat resistant protective gloves, clothing and face shield that are able to withstand the temperature of the heated product. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Consult local authorities for acceptable exposure limits.

9. Physical and chemical properties

Physical state	Liquid.
Odor	Characteristic.
Color	Clear. Colorless.
Pour Point	18 to 50 °C
Specific Gravity	0.908 to 0.921
Solubility	Insoluble in cold water, hot water.
Viscosity	kinematic: 2900 to 45000 cSt at 100°C SUS: 14230 to 188500 SUS at 100°C

10. Stability and reactivity

Stability and Reactivity	Stable under recommended storage and handling conditions (see section 7). Depolymerizes at temperatures above 250C.
Conditions to avoid	Keep away from sources of ignition. Keep away from heat, sparks and flame. Depolymerizes at temperatures above 250C.
Incompatibility with Various Substances	Strong oxidizing agents; acidic clays at > 100C.
Hazardous Decomposition Products	Products of Combustion: carbon oxides (CO, CO2).
Hazardous Polymerization	Will not occur.

11. Toxicological information

Acute toxicity

Similar materials were practically non-toxic when tested in acute oral (rat LD50 > 34,600 mg/kg), dermal (rabbit LD50 > 10,250 mg/kg). A range of similar materials have been tested for eye and skin irritation. For eye irritation, none of these materials have produced scores exceeding 8.0 out of a possible total of 110 with complete disappearance of effects in 72 hours (rabbits). Consequently these materials are expected to be mildly irritating to the eyes. When applied to the skin of rabbits similar materials scored 1.5 out of a possible total of 8.0, indicating that this product may be a slight skin irritant.

Acute toxicity

Ingredient Name	Test	Result	Route	Species
Polyisobutylene.	LD50	>34600 mg/kg	Oral	Rat (similar material)
	LD50	>10250 mg/kg	Dermal	Rat (similar material)

Chronic toxicity

Carcinogenic Effects

No component of this product at levels greater than 0.1% is identified as a carcinogen by ACGIH or the International Agency for Research on Cancer (IARC). No component of this product present at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program (NTP) or the U.S. Occupational Safety and Health Act (OSHA).

Mutagenic Effects

No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a mutagen.

Reproductive Effects

No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a reproductive toxin.

Teratogenic effects

No component of this product at levels greater than 0.1% is classified by established regulatory criteria as teratogenic or embryotoxic.

12. Ecological information

Ecotoxicity

>1000 mg/l [LC50, (WSF) Nominal Concentration, similar material], 96 hours [Fish (Trout)].
>1000 mg/l [LC50, (WSF) Nominal Concentration, similar material], 96 hours [Minnows].
>1000 mg/l [EC50, (WSF) Nominal Concentration, similar material], 48 hours [Daphnia].

Persistence/degradability

This product is unlikely to biodegrade at a significant rate.

Mobility

This product is not likely to move rapidly with surface or groundwater flows because of its low water solubility of: <1000 ppm

Bioaccumulative potential

This product is not expected to bioaccumulate through food chains in the environment.

Other Ecological Information

Aquatic studies of materials with very low water solubility often refer to the amount of chemical added to the test system, not the amount dissolved in water. Most acute acquatic toxicity studies of these have used the water-accommodated fraction (WAF) obtained by mixing the test chemical in water for 20 to 24 hours, then siphoning the water for use in the test. The water-soluble fraction (WSF) is a similar approach.

These materials are not expected to adversely affect microbial activity. Following a modified OECD Method 209, bacterial inhibition using activated sludge microbes was tested with several grades of this material. The tests showed no bacterial inhibition at loadings of up to 25 mg/L, measured through oxygen consumption (respiration). In separate tests, the biological oxygen demand (BOD) of the microorganisms was measured. In these tests, there was no evidence of bacterial toxicity, even at loadings of about 200,000 mg/L. In addition, an epoxidized form of this material was found to be non-mutagenic and non-toxic to the microorganism used in the Ames mutagenicity assay, Salmonella typhimurium.

13. Disposal considerations

Waste Information

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Empty containers may contain harmful, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld, reuse or dispose of containers unless adequate precautions are taken against these hazards. Labels should not be removed from containers until they have been cleaned.

Consult your local or regional authorities.

14. Transport information

International transport regulations

Regulatory Information	UN number	Proper shipping name	Class	Packing Group	Label	Additional information
DOT Classification	UN3257	Elevated temperature liquid, n.o.s.	9	III	Not determined.	-
TDG Classification	UN3257	Elevated temperature liquid, n.o.s.	9	III	Not determined.	
IMDG Classification	UN3257	Elevated temperature liquid, n.o.s. (Polybutene (isobutylene/butene copolymer))	9	III	Not determined.	-
IATA Classification	UN3257	Forbidden			Not determined.	-

Nonbulk Shipping Information

D O T Nonbulk Shipping Information	When this material is shipped at temperatures < 100C this material is not regulated for transport.
T D G Nonbulk Shipping Information	When this material is shipped at temperatures < 100C this material is not regulated for transport.
IMDG Nonbulk Shipping Information	When this material is shipped at temperatures < 100C this material is not regulated for transport.
IATA Nonbulk Shipping Information	When this material is shipped at temperatures < 100C this material is not regulated for transport.

15. Regulatory information

U.S. Federal Regulations

US INVENTORY (TSCA): In compliance.

SARA Title III Section 302 Extremely Hazardous Substances (40 CFR Part 355): This product is not regulated under Section 302 of SARA and 40 CFR Part 355.
SARA Title III Sections 311/312 Hazardous Categorization (40 CFR Part 370): Defined as non-hazardous by OSHA under 29 CFR 1910.1200(d).
SARA 313 toxic chemical notification and release reporting: No products were found.
CERCLA Sections 102a/103 Hazardous Substances (40 CFR Part 302.4): This material is not regulated under CERCLA Sections 103 and 107.

State Regulations

No products were found.

California prop. 65: No products were found.

Inventories

AUSTRALIAN INVENTORY (AICS): In compliance.

CANADA INVENTORY (DSL): In compliance.

CHINA INVENTORY (IECS): In compliance.

EC INVENTORY (EINECS): In compliance.

JAPAN INVENTORY (ENCS): In compliance.

KOREA INVENTORY (ECL): In compliance.

PHILIPPINE INVENTORY (PICCS): In compliance.

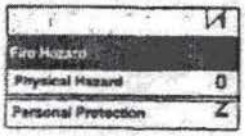
16. Other information

Label Requirements

CAUTION!

Slightly irritating to the eyes.

Hazardous Material Information System (U.S.A.)



National Fire Protection Association (U.S.A.)

HISTORY

Date of issue 11/08/2002.

Date of Previous Issue No Previous Validation.

Prepared by Product Stewardship

Notice to Reader

NOTICE : This Material Safety Data Sheet is based upon data considered to be accurate at the time of its preparation. Despite our efforts, it may not be up to date or applicable to the circumstances of any particular case. We are not responsible for any damage or injury resulting from abnormal use, from any failure to follow appropriate practices or from hazards inherent in the nature of the product.

SUPERIOR FIBERS, L.L.C.

US Department of Labor
Occupational Safety and Health Administration
This SDS Complies with 29 CFR 1910.1200
(THE HAZARDOUS COMMUNICATION STANDARD)

IDENTIFY (AS USED ON LABELS AND LISTS):

Glass Fiber Air Filtration Media

SECTION I Identification

MANUFACTURER'S NAME: Superior Fibers, LLC
ADDRESS: 456 Robert Stone Way
Reedsville WV 26547

REVISED: 4/22/2015
SUPERSEDES: All Others
HVAC applications

TELEPHONE NUMBER FOR INFORMATION: (304) 864-3321

EMERGENCY TELEPHONE NUMBER: (304) 864-3321

SECTION II ---- HAZARDOUS IDENTIFICATION

"Warning"
Fiberglass may cause irritation to the skin of those individuals that exhibit acute sensitivity. Eye and upper respiratory tract irritation can also occur without proper protection.

Precautions: Avoid contact with eyes. Avoid contact with skin. Avoid breathing dust. Do not take internally. Do not eat, drink, or smoke in work areas. Wash thoroughly after handling.
Other Limits

SECTION III --- COMPOSITION / INFORMATION ON INGREDIENTS

	OSHA PEL	ACGIH TLV	Recommended
Glass Fibers (Nuisance particles, Non-Respirable)	10 mg/m	10 mg/m	N/A
Cured Urea Formaldehyde Resin	None Est.	None Est.	N/A
Polybutene Emulsion	None Est.	None Est.	N/A
May contain quantities of Oil AG (Dust Adhesive)			
94.80% Propylated Triphenyl Phosphate – Phosflex 41-L	3.000	3.000	N/A

N.L.= Not Listed N.A.= Not Available N/A= Not Applicable

SECTION IV ---- FIRST AID MEASURES

INHALATION: Remove from area to fresh air. If symptomatic, contact a poison control center, emergency room or physician for treatment information.

EYE/SKIN CONTACT: EYE: Remove contact lens and pour a stream of warm water through the effected eye for at least 15 minutes. If irritation persists, contact a poison control center, emergency room, or physician as further treatment may be necessary. **SKIN**: run a gentle stream of water over the effected area for 15 minutes. A mild soap may be used if available. If symptoms persist, contact a poison control center, emergency room, or physician as further treatment may be necessary. If glass fiber becomes imbedded, seek medical attention.

INGESTION: Gently wipe or rinse the inside of the mouth with water. Sips of water can be given. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Contact a poison control center, emergency room or physician for treatment information.

SECTION V ---- FIRE – FIGHTING MEASURES

INCOMPATABILITY (MATERIALS TO AVOID): None

HAZARDOUS DECOMPOSITION: Will not occur

In a sustained fire, proper protection against products of combustion from fuel and sizing/binder must be worn. Byproducts of combustion would be CO, CO2, Carbon Particulate, and Glass Fibers

EXTIGUISHING MEDIA: Use extinguishers appropriate for the surrounding area, paying close attention to any electrical equipment or dissimilar combustibles stored in adjacent areas.

SECTION VI ---- ACCIDENTAL RELEASE MEASURES

ACTION TO BE TAKEN: Sweep or gather material and place in a proper container for disposal or recovery. To inhibit the spread of dust, use a vacuuming device or wet sweeping method instead of dry sweeping.

SECTION VII ---- HANDLING AND STORAGE

PRECAUTION S TO BE TAKEN IN HANDLING AND STORING: For optimum performance store in areas at or below 25 degrees C (77 F) with relative humidity less than 65%. Material may build static charge if stored in loose polyethylene packaging.

OTHER PRECAUTIONS: Wear protective clothing, gloves and eye protection.

SECTION VIII ---- EXPOSURE CONTROLS / PERSONAL PROTECTION MEASURES

N/A = Not Applicable

EXP. LIMITS: 8 HOUR Time Weighted Average [**TWA**] 15 Minute Short Term Exposure [**STEL**]

OSHA: 15 mg/m3 TWA. (Total Dust) – 5 mg/m3 TWA. (Respirable Dust)

ACGIH: 5 mg/m3 TWA. Inhalable Fraction) – 1fiber/cm3 TWA (Respirable Fraction)

RESPIRATORY PROTECTION (SPECIFY TYPE): Wear a dust mask to filter inhalation if cutting, sanding, or grinding products that contain glass fibers.

VENTILATION	**LOCAL EXHAUST:**	Yes	**MECHANICAL (GENERAL):**	Yes
	SPECIAL:	N/A	**OTHER:**	N/A

PROTECTIVE CLOTHING OR EQUIPMENT:

GLOVES: Mandatory impervious gloves

EYE PROTECTION: Yes, avoid any eye contact – Side shields on all eyeglasses, recommended.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: None required. Barrier creams can be of help to ultra sensitive individuals. Recommend long sleeve, loose fitting, shirts be worn by sensitive individuals. It is recommended to wash work clothing separate from other laundry. Rinse washer at the end of a cycle.

WORK / HYGIENIC PRACTICES:

Follow normal work / hygienic practices. Avoid using compressed air for work area clean-up. Recommend using wet sweep or filtered vacuum .

SECTION IX --- PHYSICAL AND CHEMICAL PROPERTIES N/A = Not Applicable

BOILING POINT:	N/A	**SPECIFIC GRAVITY (H2O=1):**	N/A
VAPOR PRESSURE:	N/A	**MELTING POINT:**	N/A
VAPOR DENSITY:	N/A	**EVAPORATION RATE (BUTYL ACETATE=1):**	N/A
SOLUBILITY IN WATER:	Insoluble		

APPEARANCE AND ODOR: Free-form, lofted glass fibers, many colors, no odor.

SECTION X — STABILITY AND REACTIVITY

STABILITY: ..... Stable
HAZARDOUS POLYMERIZATION: ..... Will Not Occur
INCOMPATIBILITY (conditions to avoid): ..... None Known
HAZARDOUS THERMAL DECOMPOSITION/COMBUSTION PRODUCTS:
Fiberglass alone will not burn. But smoking of the binder/sizing content of the product may occur in temperature environments exceeding +400 Degrees F (205 Degrees C). These same ingredients will release carbon monoxide and carbon dioxide in a sustained fire situation. Additional trace ingredient releases can occur under similar circumstances but cannot be predicted as they may vary in each situation

SECTION XI — TOXICOLOGICAL INFORMATION

CARCINOGENICITY STATUS: This product is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA
MEDICAL CONDITIONS AGGREVATED: None known.
EFFECTS OF OVEREXPOSURE:
ACUTE: EYE: Dusts from this product can cause temporary mechanical irritation to the eyes.
SKIN: Dusts from this product may cause temporary mechanical irritation to the skin.
INHALATION: Dusts from this product may cause mechanical irritation of the nose, throat and respiratory tract.
CHRONIC: There are no known health effects from the long term use or contact with **nonrespirable** continuous filament glass fibers. As manufactured, SUPERIOR FIBERS, LLC glass fibers are **nonrespirable. Nonrespirable** fibers cannot reach the deep lung because they have a fiber diameter greater than 3.5 micrometers. Fibers of this diameter are unable to penetrate the narrow and bending passages of the human respiratory tract, and therefore cannot possibly cause serious pulmonary damage. Loose fibers will deposit on the surfaces of the upper respiratory tract, nose, or pharynx. These fibers are then expelled through normal physiological mechanisms.

Chopped, crushed or severely mechanically processed fiber glass may contain a very small amount of **respirable** glass fibers that could possibly reach deep lung areas. The measured airborne concentration of these **respirable** fibers in areas where noted processing has occurred, has been shown to be extremely low and well below the TLV. Repeated or prolonged exposure to **respirable** glass fibers may cause fibrosis, lung cancer and mesolthelioma. Superior Fibers, LLC fiber glass products in the form supplied does not contain respirable fibers.

Epidemiology Studies: Two major studies, in the US (performed by the University of Pittsburgh) and in Europe (performed by the International Agency for Research on Cancer) showed no increase in lung cancer or respiratory disease among people working in fiber glass production facilities. An additional smaller study performed in Canada also did not show an association between exposure of workers to fiber glass and respiratory cancer.

SECTION XII — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Fiberglass itself is considered to be an inert solid waste. No special precautions are needed in case of a release or spill.
ENVIRONMENTAL FATE: No data at this time.

SECTION XIII — DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Waste material must be disposed of in accordance with all governmental rules and regulations. Empty containers and packaging materials should be recycled or disposed of through an approved waste management facility.

SECTION XIV — TRANSPORT INFORMATION

The information contained herein is believed to be true and accurate, but is not warranted to be, whether originating with the company or not. Customers are advised to confirm that the information is current, applicable and suitable to their circumstances.

ATTACHMENT I – Equipment List Form

Attachment I

Emission Units Table

(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permit status)

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
GMF-29-GMF-50	NA	Glass Melting Furnaces with Glass Fiber Extrusion Apparatus	2015	0.15 MM Btu/hr each	New	NA
Drum-29-Drum-50	NA	Glass Fiber Forming Drums with Binder Applicators	2015	85 pounds/hr	New	NA
Hood-3	EP-7	Mat Let-Off Table	2015	4,900 pounds/hr	New	NA
Hood-4	EP-8	Pulling & Expanding Station	2015	4,900 pounds/hr	New	NA
Oven-2	EP-6	Fiberglass Mat Curing Oven	2015	5 MM Btu/hr	New	CD-3
Spray-2	EP-9	Adhesive Oil Spraying Station	2015	1,700 pounds/hr	New	CD-4
CD-3	EP-6	Regenerative Thermal Oxidizer	2015	3.0MM Btu/hr	New	NA
GMF-1 – GMF-28	NA	Glass Melting Furnaces with Glass Fiber Extrusion Apparatus	2015	0.15 MM Btu/hr each	Modification	NA
T-1	TV-1	Forming Mold Oil Storage Tank	2015	6,767 gal	Modification	NA
T-2	TV-2	Bulk Resin Storage Tank	2015	5,263 gal	Modification	NA
T-3	TV-2	Bulk Resin Storage Tank	2015	5,263 gal	Modification	NA
T-4	TV-2	Bulk Resin Storage Tank	2015	5,263 gal	Modification	NA
T-6	TV-6	Adhesive Oil Storage Tank	2015	4,130 gal	Modification	NA
T-7	TV-7	Adhesive Oil Storage Tank	2015	6,140 gal	Modification	NA
T-8	TV-8	Waste Oil Storage Tank	2015	1,000 gal	Modification	NA
T-9	NA	Binder Mix Tank	2015	750 gal	Modification	NA
T-10	NA	Binder Mix Tank	2015	750 gal	Modification	NA
T-11	NA	Binder Mix Tank	2015	750 gal	Modification	NA
T-12	NA	Binder Mix Tank	2015	750 gal	Modification	NA
T-13	NA	Binder Mix Tank	2015	750 gal	Modification	NA
T-14	NA	Binder Mix Tank	2015	750 gal	Modification	NA

[1]For Emission Units (or Sources) use the following system: 1S, 2S, 3S,... or other appropriate designation.

[2]For Emission Points use the following numbering system: 1E, 2E, 3E, …or other appropriate designation.

[3]New, modification, removal

[4]For Control Devices use the following system: 1C, 2C, 3C,…or other appropriate designation.

ATTACHMENT J – EMISSION POINTS DATA SUMMARY SHEETS

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions [4]		Maximum Potential Controlled Emissions [5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used [6]	Emission Concentration [7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
EP-6	Upward Vertical Stack	Oven-2	Curing Oven 2	CD-3	Regen. Thermal Oxidizer	NA	NA	Carbon Dioxide	912.43	3996.45	912.43	3996.45	Gas/Vapor	EE	NA
								Carbon Monoxide	0.33	1.45	0.33	1.45	Gas/Vapor	EE	NA
								Formaldehyde (CAS# 50-00-0)	23	100.5	0.46	2.01	Gas/Vapor	ST	NA
								Methane	0.017	0.08	0.017	0.08	Gas/Vapor	EE	NA
								Methanol (CAS# 67-56—1)	22	96.5	0.44	1.93	Gas/Vapor	ST	NA
								N2O	0.27	1.18	0.27	1.18	Gas/Vapor	EE	NA
								Nitrous Oxides	3.00	13.14	3.00	13.14	Gas/Vapor	EE	NA
								PM, PM-10, PM2.5	0.06	0.27	0.06	0.27	Solid	EE	NA
								Sulfur Dioxide	0.003	0.01	0.003	0.01	Gas/Vapor	EE	NA
								VOC	348.5	1010	6.97	20.20	Gas/Vapor	ST	NA
EP-7	Upward Vertical Stack	Spray-2	Adhesive Oil Spraying Station	CD-4	Filter	NA	NA	PM, PM-10, PM2.5	25	45.6	2.5	4.56	Solid	EE	NA
								VOC	5	9.13	5	9.13	Gas/Vapor	EE	NA
EP-8	Upward Vertical Stack	Hood-3	Mat Let-Off Table	NA	None	NA	NA	Formaldehyde (CAS # 50-00-0)	0.01	0.044	0.01	0.044	Gas/Vapor	ST	NA
								VOC	0.05	0.22	0.05	0.22	Gas/Vapor	EE	NA

Table 1: Emissions Data

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions[4]		Maximum Potential Controlled Emissions[5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
EP-9	Upward Vertical Stack	Hood-4	Pulling & Expanding Station	NA	None	NA	NA	Formaldehyde (CAS # 50-00-0)	0.01	0.044	0.01	0.044	Gas/Vapor	ST	NA
								VOC	0.05	0.22	0.05	0.22	Gas/Vapor	EE	NA
NONE	NA	GMF-1 – GMF-28	Glass Furnace Melting with Glass Fiber Extrusion Apparatus	NA	None	NA	NA	Carbon Dioxide	491.3	2151.89	491.3	2151.89	Gas/Vapor	EE	NA
								Carbon Monoxide	0.35	1.53	0.35	1.53	Gas/Vapor	EE	
								Methane	0.009	0.04	0.009	0.04	Gas/Vapor	EE	
								N2O	<0.001	0.004	<0.001	0.004	Gas/Vapor	EE	
								Nitrogen Oxides	0.41	1.8	0.41	1.8	Gas/Vapor	EE	
								PM, PM10, PM2.5	0.03	0.13	0.03	0.13	Solid	EE	
								Sulfur Dioxide	0.002	0.01	0.002	0.01	Gas/Vapor	EE	
								VOC	0.02	0.09	0.02	0.09	Gas/Vapor	EE	
NONE	NA	GMF-29 – GMF-50	Glass Furnace Melting with Glass Fiber Extrusion Apparatus	NA	None	NA	NA	Carbon Dioxide	386.02	1690.77	386.02	1690.77	Gas/Vapor	EE	NA
								Carbon Monoxide	0.27	1.18	0.27	1.18	Gas/Vapor	EE	
								Methane	0.007	0.03	0.007	0.03	Gas/Vapor	EE	
								N2O	<0.001	0.003	<0.001	0.003	Gas/Vapor	EE	
								Nitrogen Oxides	0.32	1.4	0.32	1.4	Gas/Vapor	EE	
								PM, PM10, PM2.5	0.02	0.09	0.02	0.09	Solid	EE	
								Sulfur Dioxide	0.002	0.01	0.002	0.01	Gas/Vapor	EE	
								VOC	0.02	0.09	0.02	0.09	Gas/Vapor	EE	

Table 1: Emissions Data

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions[4]		Maximum Potential Controlled Emissions[5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
NONE	NA	Drum-29–Drum-50	Glass Fiber Forming Drums with Binder Applicators	NA	None	NA	NA	Formaldehyde (CAS # 50-00-0) PM, PM-10, PM2.5	Neg. 1.446	Neg. 5.56	Neg. 1.446	Neg. 5.56	Gas/Vapor Solid	ST EE	NA NA
TV-1	NA	T-1	Forming Mold Oil Storage Tank	NA	None	NA	NA	VOC	2	0.2	2	0.2	Gas/Vapor	EE	NA
TV-2	NA	T-2	Bulk Resin Storage Tank	NA	None	NA	NA	VOC Formaldehyde (CAS # 50-00-0)	0.02 0.004	0.09 0.02	0.02 0.004	0.09 0.02	Gas/Vapor Gas/Vapor	EE EE	NA NA
TV-3	NA	T-3	Bulk Resin Storage Tank	NA	None	NA	NA	VOC Formaldehyde (CAS # 50-00-0)	0.02 0.004	0.09 0.02	0.02 0.004	0.09 0.02	Gas/Vapor Gas/Vapor	EE EE	NA NA
TV-4	NA	T-4	Bulk Resin Storage Tank	NA	None	NA	NA	VOC Formaldehyde (CAS # 50-00-0)	0.02 0.004	0.09 0.02	0.02 0.004	0.09 0.02	Gas/Vapor Gas/Vapor	EE EE	NA NA

Table 1: Emissions Data

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions[4]		Maximum Potential Controlled Emissions[5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
TV-6	NA	T-6	Adhesive Oil Storage Tank	NA	None	NA	NA	VOC	1	0.1	1	0.1	Gas/Vapor	EE	NA
TV-7	NA	T-7	Adhesive Oil Storage Tank	NA	None	NA	NA	VOC	1	0.1	1	0.1	Gas/Vapor	EE	NA
TV-8	NA	T-8	Waste Oil Storage Tank	NA	None	NA	NA	VOC	1	0.1	1	0.1	Gas/Vapor	EE	NA
None	None	T-9 – T-14	Binder Mix Tanks	NA	None	NA	NA	VOC Formaldehyde (CAS # 50-00-0)	0.1 0.02	0.45 0.10	0.1 0.02	0.45 0.10	Gas/Vapor Gas/Vapor	EE ST	NA NA

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. **DO NOT LIST** H_2, H_2O, N_2, O_2, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[5]

Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

6 Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

7 Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data								
Emission Point ID No. *(Must match Emission Units Table)*	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (^{o}F)	Volumetric Flow [1] (acfm) *at operating conditions*	Velocity (fps)	Ground Level *(Height above mean sea level)*	Stack Height [2] *(Release height of emissions above ground level)*	Northing	Easting
EP-6	2.83	450	9,000	113	1,713	52	4373.55	602.75
EP-7	1.0	77	1,365	29	1,700	32	4373.55	602.75
EP-8	2.0	77	4,710	25	1,700	30	4373.55	602.75
EP-9	2.0	77	4,710	25	1,700	30	4373.55	602.75
TV-1	0.17	77	Varies	Varies	1,700	17	4373.55	602.75
TV-2	0.5	77	Varies	Varies	1,700	30	4373.55	602.75
TV-6	0.17	77	Varies	Varies	1,700	10	4373.55	602.75
TV-7	0.17	77	Varies	Varies	1,700	6	4373.55	602.75
TV-8	0.17	77	Varies	Varies	1,700	5	4373.55	602.75

[1] Give at operating conditions. Include inerts.
[2] Release height of emissions above ground level.

ATTACHMENT K – FUGITIVE EMISSIONS DATA SUMMARY SHEET

Attachment K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS
1.) Will there be haul road activities? ☐ Yes ☒ No ☐ If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? ☐ Yes ☒ No ☐ If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? ☐ Yes ☒ No ☐ If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)? ☐ Yes ☒ No ☐ If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.) Will there be General Clean-up VOC Operations? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered "NO" to all of the items above, it is not necessary to complete the following table, "Fugitive Emissions Summary."

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS [1]	Maximum Potential Uncontrolled Emissions [2]		Maximum Potential Controlled Emissions [3]		Est. Method Used [4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	NA	NA	NA	NA	NA	NA
Unpaved Haul Roads	NA	NA	NA	NA	NA	NA
Storage Pile Emissions	NA	NA	NA	NA	NA	NA
Loading/Unloading Operations	NA	NA	NA	NA	NA	NA
Wastewater Treatment Evaporation & Operations	NA	NA	NA	NA	NA	NA
Equipment Leaks	NA	Does not apply	NA	Does not apply	NA	NA
General Clean-up VOC Emissions	NA	NA	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA	NA

[1] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. DO NOT LIST H_2, H_2O, N_2, O_2, and Noble Gases.

[2] Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[3] Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[4] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

ATTACHMENT L – EMISSION UNIT DATA SHEETS

ATTACHMENT L – EMISSION UNIT DATA SHEETS

The following Emission Unit Data Sheets are contained in this application:

- Source ID# GMF-1 – GMF-28 Glass Melting Furnaces with Glass Fiber Extrusion Apparatus
- Source ID# GMF-29 – GMF-50 Glass Melting Furnaces with Glass Fiber Extrusion Apparatus
- Source ID# Drum-29 – Drum-50 Glass Fiber Forming Drums with Binder Applicators
- Source ID# Hood-3 – Mat Let-Off Table
- Source ID# Hood-4 – Pulling & Expanding Station
- Source ID# Oven-2 – Fiberglass Mat Curing Oven
- Source ID# Spray-2 – Adhesive Oil Spraying Station
- Source ID# T-1 – Forming Mold Oil Storage Tank
- Source ID# T-2 – Bulk Resin Storage Tank
- Source ID# T-3 – Bulk Resin Storage Tank
- Source ID# T-4 – Bulk Resin Storage Tank
- Source ID# T-6 – Adhesive Oil Storage Tank
- Source ID# T-7 – Adhesive Oil Storage Tank
- Source ID# T-8 – Waste Oil Storage Tank
- Source ID# T-9 thru T-14 Binder Mix Tanks

Attachment L EMISSIONS UNIT DATA SHEET GENERAL

REDACTED COPY – CLAIM CONFIDENTIALITY

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): GMF-1 - GMF-28

1. Name or type and model of proposed affected source:

Twenty eight (28) Glass Melting Furnaces with Glass Fiber Extrusion Apparauts
Manufacturer: Superior Fiber
Model Number: Not Applicable

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

Glass Cullet [redacted] charged/hr for each of the 28 Glass Melting Furnaces.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

Approximately [redacted] produced/hr for each of the 28 Glass Melting Furnaces.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

NA

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

Natural Gas

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

NA - Pipeline Quality Natural Gas

(c) Theoretical combustion air requirement (ACF/unit of fuel):

NA @ °F and psia.

(d) Percent excess air: NA

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

Natural gas burners rated at 150,000 Btu/hr each.
One burner for each of the 28 Glass Melting Furnaces.

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

NA

(g) Proposed maximum design heat input: 0.15 × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ °F and 14.7 psia

a.	NO_X	0.41	lb/hr	grains/ACF
b.	SO_2	0.002	lb/hr	grains/ACF
c.	CO	0.35	lb/hr	grains/ACF
d.	PM_{10}	0.03	lb/hr	grains/ACF
e.	Hydrocarbons		lb/hr	grains/ACF
f.	VOCs	0.02	lb/hr	grains/ACF
g.	Pb		lb/hr	grains/ACF
h.	Specify other(s)			
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
Record quanity of annual natural gas consumption in order to calculate annual air emission.	Record quantity of annual natural gas consumption.
REPORTING	**TESTING**
None.	None.

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty
NA

Attachment L EMISSIONS UNIT DATA SHEET GENERAL

REDACTED COPY – CLAIM CONFIDENTIALITY

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): GMF-29 - GMF-50

1. Name or type and model of proposed affected source:

Twenty two (22) Glass Melting Furnaces with Glass Fiber Extrusion Apparauts
Manufacturer: Superior Fiber
Model Number: Not Applicable

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

Glass Cullet [redacted] charged/hr for each of the 22 Glass Melting Furnaces.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

Approximately [redacted] produced/hr for each of the 22 Glass Melting Furnaces.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

NA

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

Natural Gas

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

NA - Pipeline Quality Natural Gas

(c) Theoretical combustion air requirement (ACF/unit of fuel):

NA @ °F and psia.

(d) Percent excess air: NA

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

Natural gas burners rated at 150,000 Btu/hr each.
One burner for each of the 22 Glass Melting Furnaces.

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

NA

(g) Proposed maximum design heat input: 0.15 × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ °F and 14.7 psia

a.	NO_X	0.32	lb/hr	1.40	grains/ACF
b.	SO_2	0.002	lb/hr	0.01	grains/ACF
c.	CO	0.27	lb/hr	1.18	grains/ACF
d.	PM_{10}	0.02	lb/hr	0.09	grains/ACF
e.	Hydrocarbons		lb/hr		grains/ACF
f.	VOCs	0.02	lb/hr	0.09	grains/ACF
g.	Pb		lb/hr		grains/ACF
h.	Specify other(s)				
			lb/hr		grains/ACF
			lb/hr		grains/ACF
			lb/hr		grains/ACF
			lb/hr		grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
Record quantity of natural gas consumption in order to calculate annual air emissions.	Record quantity of annual natural gas consumption.
REPORTING	**TESTING**
None.	None.

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty
NA

Attachment L EMISSIONS UNIT DATA SHEET GENERAL

REDACTED COPY – CLAIM CONFIDENTIALITY

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): Drum-29 - Drum-50

1. Name or type and model of proposed affected source:

   Twenty two (22) Glass Fiber Forming Drums with Binder Applicators

   Manufacturer: Superior Fibers
   Model: Not Applicable

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   Extruded Glass Fibers - Approximately [redacted] charged/hr for each of the 22 Glass Fiber Forming Drums.
   Binder - Approximately [redacted] applied/hr for each of the 22 Binder Applicators.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Approximately [redacted] produced/hr for each of the 22 Glass Fiber Forming Drums.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   NA

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

NA

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

(c) Theoretical combustion air requirement (ACF/unit of fuel):

@ °F and psia.

(d) Percent excess air: NA

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

(g) Proposed maximum design heat input: × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ 77 °F and 14.7 psia

a.	NO_X	NA	lb/hr	grains/ACF
b.	SO_2	NA	lb/hr	grains/ACF
c.	CO	NA	lb/hr	grains/ACF
d.	PM_{10}	1.45	lb/hr	grains/ACF
e.	Hydrocarbons		lb/hr	grains/ACF
f.	VOCs	Negligible	lb/hr	grains/ACF
g.	Pb		lb/hr	grains/ACF
h.	Specify other(s)			
	Formaldehyde	Negligible	lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
None.	None.
REPORTING	**TESTING**
None.	None.

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty
NA

Attachment L EMISSIONS UNIT
DATA SHEET GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): Hood-3

1. Name or type and model of proposed affected source:

   Pulling & Expanding Station
   Manufacturer: NA
   Model: NA

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   Unexpanded Glass Fiber Mats

   Approximately 3,375 lb charged/hr.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Expanded Glass Fiber Mats

   Approximately 3,375 lb produced/hr.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   NA

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

NA

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

(c) Theoretical combustion air requirement (ACF/unit of fuel):

@ °F and psia.

(d) Percent excess air: NA

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

(g) Proposed maximum design heat input: × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ 77 °F and 14.7 psia

a.	NO_X	NA	lb/hr	grains/ACF
b.	SO_2	NA	lb/hr	grains/ACF
c.	CO	NA	lb/hr	grains/ACF
d.	PM_{10}	NA	lb/hr	grains/ACF
e.	Hydrocarbons		lb/hr	grains/ACF
f.	VOCs	0.05	lb/hr	grains/ACF
g.	Pb		lb/hr	grains/ACF
h.	Specify other(s)			
	Formaldehyde	0.01	lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
None.	None.
REPORTING	**TESTING**
None.	None.

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty
NA

Attachment L EMISSIONS UNIT
DATA SHEET GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): Hood-4

1. Name or type and model of proposed affected source:

   Pulling & Expanding Station
   Manufacturer: NA
   Model: NA

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   Unexpanded Glass Fiber Mats

   Approximately 3,375 lb charged/hr.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Expanded Glass Fiber Mats

   Approximately 3,375 lb produced/hr.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   NA

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

NA

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

(c) Theoretical combustion air requirement (ACF/unit of fuel):

@ °F and psia.

(d) Percent excess air: NA

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

(g) Proposed maximum design heat input: × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ 77 °F and 14.7 psia

a.	NO_X	NA	lb/hr	grains/ACF
b.	SO_2	NA	lb/hr	grains/ACF
c.	CO	NA	lb/hr	grains/ACF
d.	PM_{10}	NA	lb/hr	grains/ACF
e.	Hydrocarbons		lb/hr	grains/ACF
f.	VOCs	0.05	lb/hr	grains/ACF
g.	Pb		lb/hr	grains/ACF
h.	Specify other(s)			
	Formaldehyde	0.01	lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
None.	None.
REPORTING	**TESTING**
None.	None.

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty
NA

Attachment L EMISSIONS UNIT
DATA SHEET GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): Oven-2

1. Name or type and model of proposed affected source:

   Fiberglass Mat Curing Oven
   Manufacturer: Infratrol LLC
   Model: OV6132

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   Expanded Glass Fiber Mats
   Approximately 3,375 lb charged/hr.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Approximately 2,950 lb produced/hr.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   NA

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

Natural Gas

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

NA - Pipeline Quality Natural Gas

(c) Theoretical combustion air requirement (ACF/unit of fuel):

NA @ °F and psia.

(d) Percent excess air: 7.5

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

Two burners for the Curing Oven.

Natural gas burners rated at 3,200,000 Btu/hr each, but are operated at less than rated maximum design heat input of 5,000,000 Btu/hr total for Curing Oven

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

NA

(g) Proposed maximum design heat input: 5 × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ 350-400 °F and 14.7 psia

a.	NO_X	2.5	lb/hr	grains/ACF
b.	SO_2	0.003	lb/hr	grains/ACF
c.	CO	0.10	lb/hr	grains/ACF
d.	PM_{10}	0.04	lb/hr	grains/ACF
e.	Hydrocarbons		lb/hr	grains/ACF
f.	VOCs	348.5	lb/hr	grains/ACF
g.	Pb		lb/hr	grains/ACF
h.	Specify other(s)			
	Formaldehyde	23	lb/hr	grains/ACF
	Methanol	22	lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
Record quantity of natural gas consumption in order to calculate annual air emissions. Curing oven will only cure products with binder maximum 0.51% free formaldehyde content by weight. Monthly product quantity processed through the Curing Oven shall not exceed 900 tons/month and annual product quantity processed through the Curing Oven shall not exceed 9,750 tons/yr.	Record quantity of annual natural gas consumption. Maintain records on-site of resin maximum 0.51% free formaldehyde content by weight for products processed through the Curing Oven. Maintain records on-site of monthly and annual pounds of product processed through the Curing Oven and corresponding hours of operation of the Curing Oven.
REPORTING None.	**TESTING** None.

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty
NA

Attachment L EMISSIONS UNIT
DATA SHEET GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): Spray-2

1. Name or type and model of proposed affected source:

   Adhesive Oil Spray Station
   Manufacturer: Superior Fibers
   Model: NA

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   Cured Glass Fiber Mats - Approximately 2,950 lb charged/hr.

   Adhesive Oil Coating - Approximately 600 lb sprayed/hr.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Coated Glass Fiber Mats

   Approximately 3,460 lb produced/hr.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   NA

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

NA

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

(c) Theoretical combustion air requirement (ACF/unit of fuel):

@ °F and psia.

(d) Percent excess air: NA

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

(g) Proposed maximum design heat input: × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ 77 °F and 14.7 psia

a.	NO_X	NA	lb/hr	grains/ACF
b.	SO_2	NA	lb/hr	grains/ACF
c.	CO	NA	lb/hr	grains/ACF
d.	PM_{10}	25	lb/hr	grains/ACF
e.	Hydrocarbons		lb/hr	grains/ACF
f.	VOCs	5.00	lb/hr	grains/ACF
g.	Pb		lb/hr	grains/ACF
h.	Specify other(s)			
	NA		lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
None.	None.
REPORTING	**TESTING**
None.	None.

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty
NA

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT **www.epa.gov/tnn/tanks.html**), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (**http://www.epa.gov/tnn/chief/**).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name Mold Oil Storage	2. Tank Name T-1
3. Tank Equipment Identification No. (as assigned on *Equipment List Form*) T-1	4. Emission Point Identification No. (as assigned on *Equipment List Form*) TV-1
5. Date of Commencement of Construction (for existing tanks) 1978	
6. Type of change ☐New Construction ☐New Stored Material ☒Other Tank Modification	
7. Description of Tank Modification (if applicable) Increased throughput	
7A. Does the tank have more than one mode of operation? (e.g. Is there more than one product stored in the tank?) ☐Yes ☒No	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode). N/A	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): N/A	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 6,787 gallons	
9A. Tank Internal Diameter (ft) 8.0	9B. Tank Internal Height (or Length) (ft) 18
10A. Maximum Liquid Height (ft) 8.0	10B. Average Liquid Height (ft) 4.0
11A. Maximum Vapor Space Height (ft) 8.0	11B. Average Vapor Space Height (ft) 4.0
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. 6,767 gallons	

13A. Maximum annual throughput (gal/yr)	13B. Maximum daily throughput (gal/day)
24,000 gallons/yr	570 gallons/day

14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume)
4

15. Maximum tank fill rate (gal/min) 1,250 gallons per hour

16. Tank fill method ☐Submerged ☒Splash ☐Bottom Loading

17. Complete 17A and 17B for Variable Vapor Space Tank Systems ☒Does Not Apply

17A. Volume Expansion Capacity of System (gal)	17B. Number of transfers into system per year

18. Type of tank (check all that apply):
☒Fixed Roof ___vertical ___horizontal X flat roof ___ cone roof ___dome roof
___other (describe)
☐External Floating Roof ___pontoon roof ___double deck roof
☐Domed External (or Covered) Floating Roof
☐Internal Floating Roof ___vertical column support ___ self-supporting
☐Variable Vapor Space ___lifter roof ___diaphragm
☐Pressurized ___ spherical ___ cylindrical
☐Underground
☐Other (describe)

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)

19. Tank Shell Construction:
☐Riveted ☐Gunite lined ☐Epoxy-coated rivets ☒Other (describe)

20A. Shell Color Blue	20B. Roof Color Blue	20C. Year Last Painted 1999

21. Shell Condition (if metal and unlined):
☒No Rust ☐Light Rust ☐Dense Rust ☐Not applicable

22A. Is the tank heated? ☐YES ☒NO

22B. If YES, provide the operating temperature (°F)

22C. If YES, please describe how heat is provided to tank.

23. Operating Pressure Range (psig): to Ambient

24. Complete the following section for **Vertical Fixed Roof Tanks** ☐Does Not Apply

24A. For dome roof, provide roof radius (ft) >12

24B. For cone roof, provide slope (ft/ft)

25. Complete the following section for **Floating Roof Tanks** ☒Does Not Apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type: (check one) ☐Metallic (Mechanical) Shoe Seal ☐Liquid Mounted Resilient Seal ☐Vapor Mounted Resilient Seal ☐Other (describe):

25C. Is the Floating Roof equipped with a Secondary Seal? ☐YES ☐NO

25D. If YES, how is the secondary seal mounted? (check one) ☐Shoe ☐Rim ☐Other (describe):

25E. Is the Floating Roof equipped with a weather shield? ☐YES ☐NO

25F. Describe deck fittings; indicate the number of each type of fitting:		
ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:
LADDER WELL		
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:	
GAUGE-HATCH/SAMPLE PORT		
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:	
ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)
VACUUM BREAKER		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
RIM VENT		
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
DECK DRAIN (3-INCH DIAMETER)		
OPEN:	90% CLOSED:	
STUB DRAIN		
1-INCH DIAMETER:		
OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)		

26. Complete the following section for Internal Floating Roof Tanks ☒Does Not Apply	
26A. Deck Type: ☐Bolted ☐Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: ☐Continuous sheet construction 5 feet wide ☐Continuous sheet construction 6 feet wide ☐Continuous sheet construction 7 feet wide ☐Continuous sheet construction 5 × 7.5 feet wide ☐Continuous sheet construction 5 × 12 feet wide ☐Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft^2)
For column supported tanks: 26F. Number of columns:	26G. Diameter of each column:

IV. SITE INFORMANTION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. Reedsville, WV	
28. Daily Average Ambient Temperature (°F)	50.25
29. Annual Average Maximum Temperature (°F)	61.33
30. Annual Average Minimum Temperature (°F)	38.25
31. Average Wind Speed (miles/hr)	
32. Annual Average Solar Insulation Factor (BTU/(ft^2·day))	
33. Atmospheric Pressure (psia)	

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid: 60 to 80 (F)			
34A. Minimum (°F) 60		34B. Maximum (°F) 85	
35. Average operating pressure range of tank: Ambient			
35A. Minimum (psig) Ambient		35B. Maximum (psig) Ambient	
36A. Minimum Liquid Surface Temperature (°F) 60		36B. Corresponding Vapor Pressure (psia)	
37A. Average Liquid Surface Temperature (°F) 70		37B. Corresponding Vapor Pressure (psia)	
38A. Maximum Liquid Surface Temperature (°F) 85		38B. Corresponding Vapor Pressure (psia)	
39. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.			
39A. Material Name or Composition	Flexon 845		
39B. CAS Number	64742-54-7		
39C. Liquid Density (lb/gal)	7.3		
39D. Liquid Molecular Weight (lb/lb-mole)			
39E. Vapor Molecular Weight (lb/lb-mole)			

Maximum Vapor Pressure 39F. True (psia) 39G. Reid (psia)	<0.7 @ 150C		
Months Storage per Year 39H. From 39I. To	January December		

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): ☒Does Not Apply

- ☐Carbon Adsorption[1]
- ☐Condenser[1]
- ☐Conservation Vent (psig)
  - Vacuum Setting — Pressure Setting
- ☐Emergency Relief Valve (psig)
- ☐Inert Gas Blanket of
- ☐Insulation of Tank with
- ☐Liquid Absorption (scrubber)[1]
- ☐Refrigeration of Tank
- ☐Rupture Disc (psig)
- ☐Vent to Incinerator[1]
- ☐Other[1] (describe):

[1] Complete appropriate Air Pollution Control Device Sheet.

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss Amount	Working Loss Units	Annual Loss (lb/yr)	Estimation Method[1]
Flexon 845 64742-54-7	<1.0	<1.0	lb/hr	<200	TANKS 4.0

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

☒ Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT **www.epa.gov/tnn/tanks.html**), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (**http://www.epa.gov/tnn/chief/**).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name Resin Storage	2. Tank Name T-2
3. Tank Equipment Identification No. (as assigned on *Equipment List Form*) T-2	4. Emission Point Identification No. (as assigned on *Equipment List Form*) TV-2
5. Date of Commencement of Construction (for existing tanks) 1978	
6. Type of change ☐New Construction ☐New Stored Material ☒Other Tank Modification	
7. Description of Tank Modification (if applicable) Increased throughput	
7A. Does the tank have more than one mode of operation? (e.g. Is there more than one product stored in the tank?) ☐Yes ☒No	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode). N/A	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): N/A	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 5,517 gallons	
9A. Tank Internal Diameter (ft) 8.5	9B. Tank Internal Height (or Length) (ft) 13
10A. Maximum Liquid Height (ft) 13	10B. Average Liquid Height (ft) 6.5
11A. Maximum Vapor Space Height (ft) 3	11B. Average Vapor Space Height (ft) 6.5
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. 4,500 gallons	

13A. Maximum annual throughput (gal/yr)	13B. Maximum daily throughput (gal/day)
884,000 gallons/yr	50,000 gallons/day

14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume): 208

15. Maximum tank fill rate (gal/min): 1,800 gallons per hour

16. Tank fill method: ☐Submerged ☒Splash ☐Bottom Loading

17. Complete 17A and 17B for Variable Vapor Space Tank Systems ☒Does Not Apply

17A. Volume Expansion Capacity of System (gal)	17B. Number of transfers into system per year

18. Type of tank (check all that apply):

☒Fixed Roof ___vertical ___horizontal X flat roof ___ cone roof ___dome roof ___other (describe)

☐External Floating Roof ___pontoon roof ___double deck roof

☐Domed External (or Covered) Floating Roof

☐Internal Floating Roof ___vertical column support ___ self-supporting

☐Variable Vapor Space ___lifter roof ___diaphragm

☐Pressurized ___ spherical ___ cylindrical

☐Underground

☐Other (describe)

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)

19. Tank Shell Construction:

☐Riveted ☐Gunite lined ☐Epoxy-coated rivets ☒Other (describe)

20A. Shell Color Blue	20B. Roof Color Blue	20C. Year Last Painted 1999

21. Shell Condition (if metal and unlined):

☒No Rust ☐Light Rust ☐Dense Rust ☐Not applicable

22A. Is the tank heated? ☐YES ☒NO

22B. If YES, provide the operating temperature (°F)

22C. If YES, please describe how heat is provided to tank.

23. Operating Pressure Range (psig): to Ambient

24. Complete the following section for **Vertical Fixed Roof Tanks** ☐Does Not Apply

24A. For dome roof, provide roof radius (ft) >12

24B. For cone roof, provide slope (ft/ft)

25. Complete the following section for **Floating Roof Tanks** ☒Does Not Apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type: (check one) ☐Metallic (Mechanical) Shoe Seal ☐Liquid Mounted Resilient Seal ☐Vapor Mounted Resilient Seal ☐Other (describe):

25C. Is the Floating Roof equipped with a Secondary Seal? ☐YES ☐NO

25D. If YES, how is the secondary seal mounted? (check one) ☐Shoe ☐Rim ☐Other (describe):

25E. Is the Floating Roof equipped with a weather shield? ☐YES ☐NO

25F. Describe deck fittings; indicate the number of each type of fitting:		
ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:
LADDER WELL		
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:	
GAUGE-HATCH/SAMPLE PORT		
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:	
ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)
VACUUM BREAKER		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
RIM VENT		
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
DECK DRAIN (3-INCH DIAMETER)		
OPEN:	90% CLOSED:	
STUB DRAIN		
1-INCH DIAMETER:		
OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)		

26. Complete the following section for Internal Floating Roof Tanks ☒Does Not Apply	
26A. Deck Type: ☐Bolted ☐Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: ☐Continuous sheet construction 5 feet wide ☐Continuous sheet construction 6 feet wide ☐Continuous sheet construction 7 feet wide ☐Continuous sheet construction 5 × 7.5 feet wide ☐Continuous sheet construction 5 × 12 feet wide ☐Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft^2)
For column supported tanks: 26F. Number of columns:	26G. Diameter of each column:

IV. SITE INFORMANTION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. Reedsville, WV	
28. Daily Average Ambient Temperature (°F)	50.25
29. Annual Average Maximum Temperature (°F)	61.33
30. Annual Average Minimum Temperature (°F)	38.25
31. Average Wind Speed (miles/hr)	
32. Annual Average Solar Insulation Factor (BTU/(ft^2·day))	
33. Atmospheric Pressure (psia)	

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid: 60 to 80 (F)			
34A. Minimum (°F) 60		34B. Maximum (°F) 85	
35. Average operating pressure range of tank: Ambient			
35A. Minimum (psig) Ambient		35B. Maximum (psig) Ambient	
36A. Minimum Liquid Surface Temperature (°F) 60		36B. Corresponding Vapor Pressure (psia)	
37A. Average Liquid Surface Temperature (°F) 70		37B. Corresponding Vapor Pressure (psia)	
38A. Maximum Liquid Surface Temperature (°F) 85		38B. Corresponding Vapor Pressure (psia)	
39. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.			
39A. Material Name or Composition	UF resin		
39B. CAS Number	None		
39C. Liquid Density (lb/gal)	10.52		
39D. Liquid Molecular Weight (lb/lb-mole)			
39E. Vapor Molecular Weight (lb/lb-mole)			

Maximum Vapor Pressure 39F. True (psia) 39G. Reid (psia)			
Months Storage per Year 39H. From 39I. To	January December		

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): ☒Does Not Apply

- ☐Carbon Adsorption[1]
- ☐Condenser[1]
- ☐Conservation Vent (psig)
  - Vacuum Setting — Pressure Setting
- ☐Emergency Relief Valve (psig)
- ☐Inert Gas Blanket of
- ☐Insulation of Tank with
- ☐Liquid Absorption (scrubber)[1]
- ☐Refrigeration of Tank
- ☐Rupture Disc (psig)
- ☐Vent to Incinerator[1]
- ☐Other[1] (describe):

[1] Complete appropriate Air Pollution Control Device Sheet.

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss Amount	Working Loss Units	Annual Loss (lb/yr)	Estimation Method[1]
Formaldehyde 50-00-0	0.004	Vapor return		36	ST
VOC	0.02	Vapor return		180	ST

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

☒ Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT **www.epa.gov/tnn/tanks.html**), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (**http://www.epa.gov/tnn/chief/**).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name Resin Storage	2. Tank Name T-3
3. Tank Equipment Identification No. (as assigned on *Equipment List Form*) T-3	4. Emission Point Identification No. (as assigned on *Equipment List Form*) TV-2
5. Date of Commencement of Construction (for existing tanks) 1978	
6. Type of change ☐New Construction ☐New Stored Material ☒Other Tank Modification	
7. Description of Tank Modification (if applicable) Increased throughput	
7A. Does the tank have more than one mode of operation? (e.g. Is there more than one product stored in the tank?) ☐Yes ☒No	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode). N/A	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): N/A	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 5,517 gallons	
9A. Tank Internal Diameter (ft) 8.5	9B. Tank Internal Height (or Length) (ft) 13
10A. Maximum Liquid Height (ft) 13	10B. Average Liquid Height (ft) 6.5
11A. Maximum Vapor Space Height (ft) 3	11B. Average Vapor Space Height (ft) 6.5
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. 4,500 gallons	

13A. Maximum annual throughput (gal/yr)	13B. Maximum daily throughput (gal/day)
884,000 gallons/yr	50,000 gallons/day

14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume): 208

15. Maximum tank fill rate (gal/min): 1,800 gallons per hour

16. Tank fill method: ☐Submerged ☒Splash ☐Bottom Loading

17. Complete 17A and 17B for Variable Vapor Space Tank Systems ☒Does Not Apply

17A. Volume Expansion Capacity of System (gal)	17B. Number of transfers into system per year

18. Type of tank (check all that apply):

☒Fixed Roof ___vertical ___horizontal X flat roof ___ cone roof ___dome roof
___other (describe)

☐External Floating Roof ___pontoon roof ___double deck roof

☐Domed External (or Covered) Floating Roof

☐Internal Floating Roof ___vertical column support ___ self-supporting

☐Variable Vapor Space ___lifter roof ___diaphragm

☐Pressurized ___ spherical ___ cylindrical

☐Underground

☐Other (describe)

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)

19. Tank Shell Construction:

☐Riveted ☐Gunite lined ☐Epoxy-coated rivets ☒Other (describe)

20A. Shell Color Blue	20B. Roof Color Blue	20C. Year Last Painted 1999

21. Shell Condition (if metal and unlined):

☒No Rust ☐Light Rust ☐Dense Rust ☐Not applicable

22A. Is the tank heated? ☐YES ☒NO

22B. If YES, provide the operating temperature (°F)

22C. If YES, please describe how heat is provided to tank.

23. Operating Pressure Range (psig): to Ambient

24. Complete the following section for **Vertical Fixed Roof Tanks** ☐Does Not Apply

24A. For dome roof, provide roof radius (ft) >12

24B. For cone roof, provide slope (ft/ft)

25. Complete the following section for **Floating Roof Tanks** ☒Does Not Apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type: (check one) ☐Metallic (Mechanical) Shoe Seal ☐Liquid Mounted Resilient Seal ☐Vapor Mounted Resilient Seal ☐Other (describe):

25C. Is the Floating Roof equipped with a Secondary Seal? ☐YES ☐NO

25D. If YES, how is the secondary seal mounted? (check one) ☐Shoe ☐Rim ☐Other (describe):

25E. Is the Floating Roof equipped with a weather shield? ☐YES ☐NO

25F. Describe deck fittings; indicate the number of each type of fitting:		
ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:
LADDER WELL		
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:	
GAUGE-HATCH/SAMPLE PORT		
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:	
ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)
VACUUM BREAKER		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
RIM VENT		
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
DECK DRAIN (3-INCH DIAMETER)		
OPEN:	90% CLOSED:	
STUB DRAIN		
1-INCH DIAMETER:		
OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)		

26. Complete the following section for Internal Floating Roof Tanks ☒Does Not Apply	
26A. Deck Type: ☐Bolted ☐Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: ☐Continuous sheet construction 5 feet wide ☐Continuous sheet construction 6 feet wide ☐Continuous sheet construction 7 feet wide ☐Continuous sheet construction 5 × 7.5 feet wide ☐Continuous sheet construction 5 × 12 feet wide ☐Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft^2)
For column supported tanks: 26F. Number of columns:	26G. Diameter of each column:

IV. SITE INFORMANTION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. Reedsville, WV	
28. Daily Average Ambient Temperature (°F)	50.25
29. Annual Average Maximum Temperature (°F)	61.33
30. Annual Average Minimum Temperature (°F)	38.25
31. Average Wind Speed (miles/hr)	
32. Annual Average Solar Insulation Factor (BTU/(ft^2·day))	
33. Atmospheric Pressure (psia)	

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid: 60 to 80 (F)			
34A. Minimum (°F) 60		34B. Maximum (°F) 85	
35. Average operating pressure range of tank: Ambient			
35A. Minimum (psig) Ambient		35B. Maximum (psig) Ambient	
36A. Minimum Liquid Surface Temperature (°F) 60		36B. Corresponding Vapor Pressure (psia)	
37A. Average Liquid Surface Temperature (°F) 70		37B. Corresponding Vapor Pressure (psia)	
38A. Maximum Liquid Surface Temperature (°F) 85		38B. Corresponding Vapor Pressure (psia)	
39. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.			
39A. Material Name or Composition	UF resin		
39B. CAS Number	None		
39C. Liquid Density (lb/gal)	10.52		
39D. Liquid Molecular Weight (lb/lb-mole)			
39E. Vapor Molecular Weight (lb/lb-mole)			

Maximum Vapor Pressure 39F. True (psia) 39G. Reid (psia)			
Months Storage per Year 39H. From 39I. To	January December		

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): ☒Does Not Apply

- ☐Carbon Adsorption[1]
- ☐Condenser[1]
- ☐Conservation Vent (psig)
  - Vacuum Setting — Pressure Setting
- ☐Emergency Relief Valve (psig)
- ☐Inert Gas Blanket of
- ☐Insulation of Tank with
- ☐Liquid Absorption (scrubber)[1]
- ☐Refrigeration of Tank
- ☐Rupture Disc (psig)
- ☐Vent to Incinerator[1]
- ☐Other[1] (describe):

[1] Complete appropriate Air Pollution Control Device Sheet.

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss Amount	Working Loss Units	Annual Loss (lb/yr)	Estimation Method[1]
Formaldehyde 50-00-0	0.004	Vapor return		36	ST
VOC	0.02	Vapor return		180	ST

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

☒ Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT **www.epa.gov/tnn/tanks.html**), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (**http://www.epa.gov/tnn/chief/**).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name Resin Storage	2. Tank Name T-4
3. Tank Equipment Identification No. (as assigned on *Equipment List Form*) T-4	4. Emission Point Identification No. (as assigned on *Equipment List Form*) TV-2
5. Date of Commencement of Construction (for existing tanks) 1978	
6. Type of change ☐New Construction ☐New Stored Material ☒Other Tank Modification	
7. Description of Tank Modification (if applicable) Increased throughput	
7A. Does the tank have more than one mode of operation? (e.g. Is there more than one product stored in the tank?) ☐Yes ☒No	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode). N/A	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): N/A	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 5,517 gallons	
9A. Tank Internal Diameter (ft) 8.5	9B. Tank Internal Height (or Length) (ft) 13
10A. Maximum Liquid Height (ft) 13	10B. Average Liquid Height (ft) 6.5
11A. Maximum Vapor Space Height (ft) 3	11B. Average Vapor Space Height (ft) 6.5
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. 4,500 gallons	

13A. Maximum annual throughput (gal/yr)	13B. Maximum daily throughput (gal/day)
884,000 gallons/yr	50,000 gallons/day

14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume): 208

15. Maximum tank fill rate (gal/min): 1,800 gallons per hour

16. Tank fill method: ☐Submerged ☒Splash ☐Bottom Loading

17. Complete 17A and 17B for Variable Vapor Space Tank Systems ☒Does Not Apply

17A. Volume Expansion Capacity of System (gal)	17B. Number of transfers into system per year

18. Type of tank (check all that apply):

☒Fixed Roof ___ vertical ___ horizontal X flat roof ___ cone roof ___ dome roof
___ other (describe)

☐External Floating Roof ___ pontoon roof ___ double deck roof

☐Domed External (or Covered) Floating Roof

☐Internal Floating Roof ___ vertical column support ___ self-supporting

☐Variable Vapor Space ___ lifter roof ___ diaphragm

☐Pressurized ___ spherical ___ cylindrical

☐Underground

☐Other (describe)

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)

19. Tank Shell Construction:

☐Riveted ☐Gunite lined ☐Epoxy-coated rivets ☒Other (describe)

20A. Shell Color Blue	20B. Roof Color Blue	20C. Year Last Painted 1999

21. Shell Condition (if metal and unlined):

☒No Rust ☐Light Rust ☐Dense Rust ☐Not applicable

22A. Is the tank heated? ☐YES ☒NO

22B. If YES, provide the operating temperature (°F)

22C. If YES, please describe how heat is provided to tank.

23. Operating Pressure Range (psig): to Ambient

24. Complete the following section for **Vertical Fixed Roof Tanks** ☐Does Not Apply

24A. For dome roof, provide roof radius (ft) >12

24B. For cone roof, provide slope (ft/ft)

25. Complete the following section for **Floating Roof Tanks** ☒Does Not Apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type: (check one) ☐Metallic (Mechanical) Shoe Seal ☐Liquid Mounted Resilient Seal ☐Vapor Mounted Resilient Seal ☐Other (describe):

25C. Is the Floating Roof equipped with a Secondary Seal? ☐YES ☐NO

25D. If YES, how is the secondary seal mounted? (check one) ☐Shoe ☐Rim ☐Other (describe):

25E. Is the Floating Roof equipped with a weather shield? ☐YES ☐NO

25F. Describe deck fittings; indicate the number of each type of fitting:

ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:

AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:

COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:

LADDER WELL	
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:

GAUGE-HATCH/SAMPLE PORT	
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:

ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)

VACUUM BREAKER	
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:

RIM VENT	
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:

DECK DRAIN (3-INCH DIAMETER)	
OPEN:	90% CLOSED:

STUB DRAIN
1-INCH DIAMETER:

OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)

26. Complete the following section for Internal Floating Roof Tanks ☒Does Not Apply		
26A. Deck Type: ☐Bolted ☐Welded		
26B. For Bolted decks, provide deck construction:		
26C. Deck seam: ☐Continuous sheet construction 5 feet wide ☐Continuous sheet construction 6 feet wide ☐Continuous sheet construction 7 feet wide ☐Continuous sheet construction 5 × 7.5 feet wide ☐Continuous sheet construction 5 × 12 feet wide ☐Other (describe)		
26D. Deck seam length (ft)	26E. Area of deck (ft^2)	
For column supported tanks: 26F. Number of columns:	26G. Diameter of each column:	

IV. SITE INFORMANTION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. Reedsville, WV	
28. Daily Average Ambient Temperature (°F)	50.25
29. Annual Average Maximum Temperature (°F)	61.33
30. Annual Average Minimum Temperature (°F)	38.25
31. Average Wind Speed (miles/hr)	
32. Annual Average Solar Insulation Factor (BTU/(ft^2·day))	
33. Atmospheric Pressure (psia)	

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid: 60 to 80 (F)			
34A. Minimum (°F) 60		34B. Maximum (°F) 85	
35. Average operating pressure range of tank: Ambient			
35A. Minimum (psig) Ambient		35B. Maximum (psig) Ambient	
36A. Minimum Liquid Surface Temperature (°F) 60		36B. Corresponding Vapor Pressure (psia)	
37A. Average Liquid Surface Temperature (°F) 70		37B. Corresponding Vapor Pressure (psia)	
38A. Maximum Liquid Surface Temperature (°F) 85		38B. Corresponding Vapor Pressure (psia)	
39. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.			
39A. Material Name or Composition	UF resin		
39B. CAS Number	None		
39C. Liquid Density (lb/gal)	10.52		
39D. Liquid Molecular Weight (lb/lb-mole)			
39E. Vapor Molecular Weight (lb/lb-mole)			

Maximum Vapor Pressure 39F. True (psia) 39G. Reid (psia)			
Months Storage per Year 39H. From 39I. To	 January December		

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): ☒Does Not Apply

- ☐Carbon Adsorption[1]
- ☐Condenser[1]
- ☐Conservation Vent (psig)
  - Vacuum Setting — Pressure Setting
- ☐Emergency Relief Valve (psig)
- ☐Inert Gas Blanket of
- ☐Insulation of Tank with
- ☐Liquid Absorption (scrubber)[1]
- ☐Refrigeration of Tank
- ☐Rupture Disc (psig)
- ☐Vent to Incinerator[1]
- ☐Other[1] (describe):

[1] Complete appropriate Air Pollution Control Device Sheet.

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss Amount	Working Loss Units	Annual Loss (lb/yr)	Estimation Method[1]
Formaldehyde 50-00-0	0.004	Vapor return		36	ST
VOC	0.02	Vapor return		180	ST

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

☒ Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT **www.epa.gov/tnn/tanks.html**), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (**http://www.epa.gov/tnn/chief/**).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name Adhesive Oil Storage	2. Tank Name T-6
3. Tank Equipment Identification No. (as assigned on *Equipment List Form*) T-6	4. Emission Point Identification No. (as assigned on *Equipment List Form*) TV-6
5. Date of Commencement of Construction (for existing tanks) 1978	
6. Type of change ☐New Construction ☐New Stored Material ☒Other Tank Modification	
7. Description of Tank Modification (if applicable) Increased throughput	
7A. Does the tank have more than one mode of operation? (e.g. Is there more than one product stored in the tank?) ☐Yes ☒No	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode). N/A	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): N/A	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 4,130 gallons	
9A. Tank Internal Diameter (ft) 5.5	9B. Tank Internal Height (or Length) (ft) 23.3
10A. Maximum Liquid Height (ft) 5.5	10B. Average Liquid Height (ft) 2.75
11A. Maximum Vapor Space Height (ft) 5.5	11B. Average Vapor Space Height (ft) 2.75
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. 3,500 gallons	

13A. Maximum annual throughput (gal/yr)	13B. Maximum daily throughput (gal/day)
154,000 gallons/yr	530 gallons/day

14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume)
38

15. Maximum tank fill rate (gal/min) 850 gallons per hour

16. Tank fill method ☐Submerged ☒Splash ☐Bottom Loading

17. Complete 17A and 17B for Variable Vapor Space Tank Systems ☒Does Not Apply

17A. Volume Expansion Capacity of System (gal)	17B. Number of transfers into system per year

18. Type of tank (check all that apply):
☒Fixed Roof ___vertical ___horizontal X flat roof ___ cone roof ___dome roof
___other (describe)
☐External Floating Roof ___pontoon roof ___double deck roof
☐Domed External (or Covered) Floating Roof
☐Internal Floating Roof ___vertical column support ___ self-supporting
☐Variable Vapor Space ___lifter roof ___diaphragm
☐Pressurized ___ spherical ___ cylindrical
☐Underground
☐Other (describe)

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)

19. Tank Shell Construction:
☐Riveted ☐Gunite lined ☐Epoxy-coated rivets ☒Other (describe)

20A. Shell Color Blue	20B. Roof Color Blue	20C. Year Last Painted 1999

21. Shell Condition (if metal and unlined):
☒No Rust ☐Light Rust ☐Dense Rust ☐Not applicable

22A. Is the tank heated? ☐YES ☒NO

22B. If YES, provide the operating temperature (°F)

22C. If YES, please describe how heat is provided to tank.

23. Operating Pressure Range (psig): to Ambient

24. Complete the following section for **Vertical Fixed Roof Tanks** ☐Does Not Apply

24A. For dome roof, provide roof radius (ft) >12

24B. For cone roof, provide slope (ft/ft)

25. Complete the following section for **Floating Roof Tanks** ☒Does Not Apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type: (check one) ☐Metallic (Mechanical) Shoe Seal ☐Liquid Mounted Resilient Seal ☐Vapor Mounted Resilient Seal ☐Other (describe):

25C. Is the Floating Roof equipped with a Secondary Seal? ☐YES ☐NO

25D. If YES, how is the secondary seal mounted? (check one) ☐Shoe ☐Rim ☐Other (describe):

25E. Is the Floating Roof equipped with a weather shield? ☐YES ☐NO

25F. Describe deck fittings; indicate the number of each type of fitting:

ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:
LADDER WELL		
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:	
GAUGE-HATCH/SAMPLE PORT		
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:	
ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)
VACUUM BREAKER		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
RIM VENT		
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
DECK DRAIN (3-INCH DIAMETER)		
OPEN:	90% CLOSED:	
STUB DRAIN		
1-INCH DIAMETER:		
OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)		

26. Complete the following section for Internal Floating Roof Tanks ☒Does Not Apply	
26A. Deck Type: ☐Bolted ☐Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: ☐Continuous sheet construction 5 feet wide ☐Continuous sheet construction 6 feet wide ☐Continuous sheet construction 7 feet wide ☐Continuous sheet construction 5 × 7.5 feet wide ☐Continuous sheet construction 5 × 12 feet wide ☐Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft^2)
For column supported tanks: 26F. Number of columns:	26G. Diameter of each column:

IV. SITE INFORMANTION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. Reedsville, WV	
28. Daily Average Ambient Temperature (°F)	50.25
29. Annual Average Maximum Temperature (°F)	61.33
30. Annual Average Minimum Temperature (°F)	38.25
31. Average Wind Speed (miles/hr)	
32. Annual Average Solar Insulation Factor (BTU/(ft^2·day))	
33. Atmospheric Pressure (psia)	

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid: 60 to 80 (F)			
34A. Minimum (°F) 60		34B. Maximum (°F) 85	
35. Average operating pressure range of tank: Ambient			
35A. Minimum (psig) Ambient		35B. Maximum (psig) Ambient	
36A. Minimum Liquid Surface Temperature (°F) 60		36B. Corresponding Vapor Pressure (psia)	
37A. Average Liquid Surface Temperature (°F) 70		37B. Corresponding Vapor Pressure (psia)	
38A. Maximum Liquid Surface Temperature (°F) 85		38B. Corresponding Vapor Pressure (psia)	
39. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.			
39A. Material Name or Composition	Hydrocal 900		
39B. CAS Number	N/A		
39C. Liquid Density (lb/gal)	7.6		
39D. Liquid Molecular Weight (lb/lb-mole)	460		
39E. Vapor Molecular Weight (lb/lb-mole)			

Maximum Vapor Pressure 39F. True (psia) 39G. Reid (psia)	<0.7@20 C		
Months Storage per Year 39H. From 39I. To	January December		

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): ☒ Does Not Apply

- ☐ Carbon Adsorption[1]
- ☐ Condenser[1]
- ☐ Conservation Vent (psig)
  - Vacuum Setting — Pressure Setting
- ☐ Emergency Relief Valve (psig)
- ☐ Inert Gas Blanket of
- ☐ Insulation of Tank with
- ☐ Liquid Absorption (scrubber)[1]
- ☐ Refrigeration of Tank
- ☐ Rupture Disc (psig)
- ☐ Vent to Incinerator[1]
- ☐ Other[1] (describe):

[1] Complete appropriate Air Pollution Control Device Sheet.

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss Amount	Working Loss Units	Annual Loss (lb/yr)	Estimation Method[1]
Hydrocal 900	<1.0	<1.0	lb/hr	<200	Worst case engineering estimate of storage
					tank emisions based upon adhesive oil
					MSDS statement of negligible volatility

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

☐ Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT **www.epa.gov/tnn/tanks.html**), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (**http://www.epa.gov/tnn/chief/**).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name Adhesive Oil Storage	2. Tank Name T-7
3. Tank Equipment Identification No. (as assigned on *Equipment List Form*) T-7	4. Emission Point Identification No. (as assigned on *Equipment List Form*) TV-7
5. Date of Commencement of Construction (for existing tanks) 1978	
6. Type of change ☐New Construction ☐New Stored Material ☒Other Tank Modification	
7. Description of Tank Modification (if applicable) Increased throughput	
7A. Does the tank have more than one mode of operation? (e.g. Is there more than one product stored in the tank?) ☐Yes ☒No	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode). N/A	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): N/A	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 6,140 gallons	
9A. Tank Internal Diameter (ft) 7.0	9B. Tank Internal Height (or Length) (ft) 21.3
10A. Maximum Liquid Height (ft) 7.0	10B. Average Liquid Height (ft) 3.5
11A. Maximum Vapor Space Height (ft) 7.0	11B. Average Vapor Space Height (ft) 3.5
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. 6,140 gallons	

13A. Maximum annual throughput (gal/yr)	13B. Maximum daily throughput (gal/day)
468,000 gallons/yr	400 gallons/day

14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume)
78

15. Maximum tank fill rate (gal/min) 650 gallons per hour

16. Tank fill method ☐Submerged ☒Splash ☐Bottom Loading

17. Complete 17A and 17B for Variable Vapor Space Tank Systems ☒Does Not Apply

17A. Volume Expansion Capacity of System (gal)	17B. Number of transfers into system per year

18. Type of tank (check all that apply):
☒Fixed Roof ___vertical ___horizontal X flat roof ___ cone roof ___dome roof
___other (describe)
☐External Floating Roof ___pontoon roof ___double deck roof
☐Domed External (or Covered) Floating Roof
☐Internal Floating Roof ___vertical column support ___ self-supporting
☐Variable Vapor Space ___lifter roof ___diaphragm
☐Pressurized ___ spherical ___ cylindrical
☐Underground
☐Other (describe)

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)

19. Tank Shell Construction:
☐Riveted ☐Gunite lined ☐Epoxy-coated rivets ☒Other (describe)

20A. Shell Color Blue	20B. Roof Color Blue	20C. Year Last Painted 1999

21. Shell Condition (if metal and unlined):
☒No Rust ☐Light Rust ☐Dense Rust ☐Not applicable

22A. Is the tank heated? ☐YES ☒NO

22B. If YES, provide the operating temperature (°F)

22C. If YES, please describe how heat is provided to tank.

23. Operating Pressure Range (psig): to Ambient

24. Complete the following section for **Vertical Fixed Roof Tanks** ☐Does Not Apply

24A. For dome roof, provide roof radius (ft) >12

24B. For cone roof, provide slope (ft/ft)

25. Complete the following section for **Floating Roof Tanks** ☒Does Not Apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type: (check one) ☐Metallic (Mechanical) Shoe Seal ☐Liquid Mounted Resilient Seal ☐Vapor Mounted Resilient Seal ☐Other (describe):

25C. Is the Floating Roof equipped with a Secondary Seal? ☐YES ☐NO

25D. If YES, how is the secondary seal mounted? (check one) ☐Shoe ☐Rim ☐Other (describe):

25E. Is the Floating Roof equipped with a weather shield? ☐YES ☐NO

25F. Describe deck fittings; indicate the number of each type of fitting:

ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:
LADDER WELL		
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:	
GAUGE-HATCH/SAMPLE PORT		
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:	
ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)
VACUUM BREAKER		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
RIM VENT		
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
DECK DRAIN (3-INCH DIAMETER)		
OPEN:	90% CLOSED:	
STUB DRAIN		
1-INCH DIAMETER:		
OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)		

26. Complete the following section for Internal Floating Roof Tanks ☒Does Not Apply	
26A. Deck Type: ☐Bolted ☐Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: ☐Continuous sheet construction 5 feet wide ☐Continuous sheet construction 6 feet wide ☐Continuous sheet construction 7 feet wide ☐Continuous sheet construction 5 × 7.5 feet wide ☐Continuous sheet construction 5 × 12 feet wide ☐Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft^2)
For column supported tanks: 26F. Number of columns:	26G. Diameter of each column:

IV. SITE INFORMANTION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. Reedsville, WV	
28. Daily Average Ambient Temperature (°F)	50.25
29. Annual Average Maximum Temperature (°F)	61.33
30. Annual Average Minimum Temperature (°F)	38.25
31. Average Wind Speed (miles/hr)	
32. Annual Average Solar Insulation Factor (BTU/(ft^2·day))	
33. Atmospheric Pressure (psia)	

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid: 60 to 80 (F)			
34A. Minimum (°F) 60		34B. Maximum (°F) 85	
35. Average operating pressure range of tank: Ambient			
35A. Minimum (psig) Ambient		35B. Maximum (psig) Ambient	
36A. Minimum Liquid Surface Temperature (°F) 60		36B. Corresponding Vapor Pressure (psia)	
37A. Average Liquid Surface Temperature (°F) 70		37B. Corresponding Vapor Pressure (psia)	
38A. Maximum Liquid Surface Temperature (°F) 85		38B. Corresponding Vapor Pressure (psia)	
39. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.			
39A. Material Name or Composition	Reofos 1886		
39B. CAS Number	N/A		
39C. Liquid Density (lb/gal)	9.6		
39D. Liquid Molecular Weight (lb/lb-mole)			
39E. Vapor Molecular Weight (lb/lb-mole)			

Maximum Vapor Pressure 39F. True (psia) 39G. Reid (psia)	<0.7@150 C		
Months Storage per Year 39H. From 39I. To	January December		

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): ☒Does Not Apply

- ☐Carbon Adsorption[1]
- ☐Condenser[1]
- ☐Conservation Vent (psig)
  - Vacuum Setting — Pressure Setting
- ☐Emergency Relief Valve (psig)
- ☐Inert Gas Blanket of
- ☐Insulation of Tank with
- ☐Liquid Absorption (scrubber)[1]
- ☐Refrigeration of Tank
- ☐Rupture Disc (psig)
- ☐Vent to Incinerator[1]
- ☐Other[1] (describe):

[1] Complete appropriate Air Pollution Control Device Sheet.

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss Amount	Working Loss Units	Annual Loss (lb/yr)	Estimation Method[1]
Reofos 1886 N/A	<1.0	<1.0	lb/hr	<200	Worst case engineering estimate of storage
					tank emisions based upon adhesive oil
					MSDS statement of negligible volatility

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

☐ Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT **www.epa.gov/tnn/tanks.html**), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (**http://www.epa.gov/tnn/chief/**).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name Waste Oil Storage	2. Tank Name T-8
3. Tank Equipment Identification No. (as assigned on *Equipment List Form*) T-8	4. Emission Point Identification No. (as assigned on *Equipment List Form*) TV-8
5. Date of Commencement of Construction (for existing tanks) 1981	
6. Type of change ☐New Construction ☐New Stored Material ☒Other Tank Modification	
7. Description of Tank Modification (if applicable) Increased throughput	
7A. Does the tank have more than one mode of operation? (e.g. Is there more than one product stored in the tank?) ☐Yes ☒No	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode). N/A	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): N/A	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 1,000 gallons	
9A. Tank Internal Diameter (ft) 4.0	9B. Tank Internal Height (or Length) (ft) 10.67
10A. Maximum Liquid Height (ft) 4.0	10B. Average Liquid Height (ft) 2.0
11A. Maximum Vapor Space Height (ft) 4.0	11B. Average Vapor Space Height (ft) 2.0
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. 1,000 gallons	

13A. Maximum annual throughput (gal/yr)	13B. Maximum daily throughput (gal/day)
4,000 gallons/yr	40 gallons/day

14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume)
4

15. Maximum tank fill rate (gal/min) 120 gallons per hour

16. Tank fill method ☐Submerged ☒Splash ☐Bottom Loading

17. Complete 17A and 17B for Variable Vapor Space Tank Systems ☒Does Not Apply

17A. Volume Expansion Capacity of System (gal)	17B. Number of transfers into system per year

18. Type of tank (check all that apply):
☒Fixed Roof ___vertical ___horizontal X flat roof ___ cone roof ___dome roof
___other (describe)
☐External Floating Roof ___pontoon roof ___double deck roof
☐Domed External (or Covered) Floating Roof
☐Internal Floating Roof ___vertical column support ___ self-supporting
☐Variable Vapor Space ___lifter roof ___diaphragm
☐Pressurized ___ spherical ___ cylindrical
☐Underground
☐Other (describe)

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)

19. Tank Shell Construction:
☐Riveted ☐Gunite lined ☐Epoxy-coated rivets ☒Other (describe)

20A. Shell Color Blue	20B. Roof Color Blue	20C. Year Last Painted 1999

21. Shell Condition (if metal and unlined):
☒No Rust ☐Light Rust ☐Dense Rust ☐Not applicable

22A. Is the tank heated? ☐YES ☒NO

22B. If YES, provide the operating temperature (°F)

22C. If YES, please describe how heat is provided to tank.

23. Operating Pressure Range (psig): to Ambient

24. Complete the following section for **Vertical Fixed Roof Tanks** ☐Does Not Apply

24A. For dome roof, provide roof radius (ft) >12

24B. For cone roof, provide slope (ft/ft)

25. Complete the following section for **Floating Roof Tanks** ☒Does Not Apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type: (check one) ☐Metallic (Mechanical) Shoe Seal ☐Liquid Mounted Resilient Seal ☐Vapor Mounted Resilient Seal ☐Other (describe):

25C. Is the Floating Roof equipped with a Secondary Seal? ☐YES ☐NO

25D. If YES, how is the secondary seal mounted? (check one) ☐Shoe ☐Rim ☐Other (describe):

25E. Is the Floating Roof equipped with a weather shield? ☐YES ☐NO

25F. Describe deck fittings; indicate the number of each type of fitting:		
ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:
LADDER WELL		
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:	
GAUGE-HATCH/SAMPLE PORT		
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:	
ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)
VACUUM BREAKER		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
RIM VENT		
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
DECK DRAIN (3-INCH DIAMETER)		
OPEN:	90% CLOSED:	
STUB DRAIN		
1-INCH DIAMETER:		
OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)		

26. Complete the following section for Internal Floating Roof Tanks	☒ Does Not Apply
26A. Deck Type: ☐ Bolted ☐ Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: ☐ Continuous sheet construction 5 feet wide ☐ Continuous sheet construction 6 feet wide ☐ Continuous sheet construction 7 feet wide ☐ Continuous sheet construction 5 × 7.5 feet wide ☐ Continuous sheet construction 5 × 12 feet wide ☐ Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft^2)
For column supported tanks: 26F. Number of columns:	26G. Diameter of each column:

IV. SITE INFORMANTION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. Reedsville, WV	
28. Daily Average Ambient Temperature (°F)	50.25
29. Annual Average Maximum Temperature (°F)	61.33
30. Annual Average Minimum Temperature (°F)	38.25
31. Average Wind Speed (miles/hr)	
32. Annual Average Solar Insulation Factor (BTU/(ft^2·day))	
33. Atmospheric Pressure (psia)	

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid: 60 to 80 (F)			
34A. Minimum (°F) 60		34B. Maximum (°F) 85	
35. Average operating pressure range of tank: Ambient			
35A. Minimum (psig) Ambient		35B. Maximum (psig) Ambient	
36A. Minimum Liquid Surface Temperature (°F) 60		36B. Corresponding Vapor Pressure (psia)	
37A. Average Liquid Surface Temperature (°F) 70		37B. Corresponding Vapor Pressure (psia)	
38A. Maximum Liquid Surface Temperature (°F) 85		38B. Corresponding Vapor Pressure (psia)	
39. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.			
39A. Material Name or Composition	Waste Oil		
39B. CAS Number	N/A		
39C. Liquid Density (lb/gal)	7.6		
39D. Liquid Molecular Weight (lb/lb-mole)	460		
39E. Vapor Molecular Weight (lb/lb-mole)			

Maximum Vapor Pressure 39F. True (psia) 39G. Reid (psia)			
Months Storage per Year 39H. From 39I. To	January December		

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): ☒ Does Not Apply

- ☐ Carbon Adsorption[1]
- ☐ Condenser[1]
- ☐ Conservation Vent (psig)
  - Vacuum Setting
  - Pressure Setting
- ☐ Emergency Relief Valve (psig)
- ☐ Inert Gas Blanket of
- ☐ Insulation of Tank with
- ☐ Liquid Absorption (scrubber)[1]
- ☐ Refrigeration of Tank
- ☐ Rupture Disc (psig)
- ☐ Vent to Incinerator[1]
- ☐ Other[1] (describe):

[1] Complete appropriate Air Pollution Control Device Sheet.

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss Amount	Working Loss Units	Annual Loss (lb/yr)	Estimation Method[1]
Waste Oil N/A	<1.0	<1.0	lb/hr	<200	Worst case engineering estimate of storage
					tank emisions based upon adhesive oil
					MSDS statement of negligible volatility

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

☐ Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L EMISSIONS UNIT
DATA SHEET GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): T-9 -- T-14

1. Name or type and model of proposed affected source:

   Six (6) Binder Mix Tanks

   Manufacturer: Various
   Model: NA

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   Resin, Binder additives

   Approximately 12,000 lb charged/hr per Binder Mix Tank

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Binder Mixture

   Approximately 12,000 lb produced/hr per Binder Mix Tank

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   NA

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

NA

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

(c) Theoretical combustion air requirement (ACF/unit of fuel):

@ °F and psia.

(d) Percent excess air: NA

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

(g) Proposed maximum design heat input: $\times 10^6$ BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ 77 °F and 14.7 psia

a.	NO_X	NA	lb/hr	grains/ACF
b.	SO_2	NA	lb/hr	grains/ACF
c.	CO	NA	lb/hr	grains/ACF
d.	PM_{10}	NA	lb/hr	grains/ACF
e.	Hydrocarbons	NA	lb/hr	grains/ACF
f.	VOCs	0.12	lb/hr	grains/ACF
g.	Pb		lb/hr	grains/ACF
h.	Specify other(s)			
	Formaldehyde	0.024	lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
None.	None.
REPORTING	**TESTING**
None.	None.

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty
NA

ATTACHMENT L – EMISSION UNIT DATA SHEETS

ATTACHMENT M – AIR POLLUTION CONTROL DEVICE SHEETS

ATTACHMENT M – AIR POLLUTION CONTROL DEVICE SHEETS

The following Air Pollution Control Device Sheets are contained in this application:

- Control Device ID# CD-3 – Regenerative Thermal Oxidizer
- Control Device ID# CD-4 – Filter

Attachment M
Air Pollution Control Device Sheet
(AFTERBURNER SYSTEM)

Control Device ID No. (must match Emission Units Table): CD-3

Equipment Information

1. Manufacturer: Adwest Technologies, Inc. Model No. RETOX 13.3 RTO95	2. ☒Thermal Energy Recovery ☐Recuperative (Conventional) ☐Catalytic
3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.	
4. Combustion chamber dimensions: Length: ft Diameter: ft Cross-sectional area: ft^2	5. Stack Dimensions: Height: 52 ft Diameter: 2.8 ft
6. Combustion (destruction) efficiency: Estimated: 99 % Minimum guaranteed: 98 %	7. Retention or residence time of materials in combustion chamber: Maximum: 0.95 sec Minimum: 0.95 sec
8. Throat diameter: NA ft	9. Combustion Chamber Volume: NA ft^3
10. Fuel used in burners: ☒Natural Gas ☐Fuel Oil, Number: ☐Other, specify:	11. Burners per afterburner: Number of burners: 1 BTU/hr for burner: 2.8 BTU/hr
12. Fuel heating value of natural gas: 20,000 BTU/lb	13. Flow rate of natural gas: 2800 ft^3/min
14. Is a catalyst material used?: ☐Yes ☒No If yes, catalyst material used:	15. Expected frequency of catalyst replacement: NA yr(s)
	16. Date catalyst was last replaced: Month/Year: NA
17. Space Velocity of the catalyst material used: NA 1/hour	18. Catalyst area: NA ft^2
	19. Volume of catalyst bed: NA ft^3
20. Minimum loading: Maximum loading:	21. Temperature catalyst bed inlet: NA °F Temperature catalyst bed outlet: NA °F
22. Explain degradation or performance indicator criteria determining catalyst replacement: NA	
23. Heat exchanger used? ☒Yes ☐No Describe heat exchanger: Regenerative	24. Heat exchanger surface area? ft^2 25. Average thermal efficiency: 95 %
26. Temperature of gases: After preheat: 1525 °F Before preheat: 350 °F	
27. Dilution air flow rate: NA ft^3/minute	
28. Describe method of gas mixing used: Gases are immeditily mixed in the packed bed of ceramic heat exchange media. This assumes an even uniform temperature gradient.	

Waste Gas (Emission Stream) to be Burned

29.

Name	Quantity Grains of H_2S/100 ft^2	Quantity-Density (LB/hr, ft^3/hr, etc)	Source of Material
NA			

30. Estimate total combustibles to afterburner 46.3 lb/hr lb/hr or ACF/hr

31. Estimated total flow rate to afterburner or catalyst including materials to be burned, carrier gases, auxiliary fuel, etc.: 13,000 scfm lb/hr, ACF/hr, or scfm
Total flow rate = Flue gas flow rate

32. Afterburner operating parameters:

	During maximum operation of feeding unit(s)	During typical operation of feeding unit(s)	During minimum operation of feeding unit(s)
Combustion chamber temperature in °F	1500	1500	1500
Emission stream gas temperature in	350	350	350
Combined gas stream entering catalyst bed in			
Flue stream leaving the catalyst bed			
Emission stream flow rate (scfm)	13,000	9,500	6,200
Efficiency (VOC Reduction)	98 %	98 %	98 %
Efficiency (Other; specify contaminant)	%	%	%

33. Inlet Emission stream parameters:

	Maximum	Typical
Pressure (mmHg):	Atmospheric	Atomospheric
Heat Content (BTU/scf):	0.23 Btu/scfm	0.20 Btu/scfm
Oxygen Content (%):	21%	21%
Moisture Content (%):	NA	NA

Are halogenated organics present? ☐ Yes ☒ No
Are particulates present? ☐ Yes ☒ No
Are metals present? ☐ Yes ☒ No

34. For thermal afterburners, is the combustion chamber temperature continuously monitored and recorded?
☒ Yes ☐ No

35. For catalytic afterburners, is the temperature rise across the catalyst bed continuously monitored and recorded? ☐ Yes ☐ No

36. Is the VOC concentration of exhaust monitored and recorded? ☐ Yes ☒ No

37. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):
NA

38. Describe the collection material disposal system:
NA

39. Have you included ***Afterburner Control Device*** in the Emissions Points Data Summary Sheet? Yes

40. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING:	RECORDKEEPING:
A two point paperless recorder monitors chamber temperature and process exhaust temperature.	The monitored temperatures are written to a disk which can be printed out in spreadsheet form.
Annual product quantity processed through the curing oven.	Maintain records of annual product quantity processed through the curing oven.
REPORTING:	**TESTING:**
None.	Stack test to determine VOC, Formaldehyde and Methanol emissions.

MONITORING: Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.

RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.

REPORTING: Please describe any proposed emissions testing for this process equipment on air pollution control device.

TESTING: Please describe any proposed emissions testing for this process equipment on air pollution control device.

41. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.

NA

42. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

98% destruction of total hydrocarbons

43. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

The oxidizer has its own set of operating ranges that are maintained by the oxidizer controls. Maintenance consists of lubrication of fans and motors, yearly replacement of thermocouples and yearly replacement of PLC battery.

ADWEST TECHNOLOGIES, INC.
A CECO Environmental Company

March 4, 2013

Superior Fibers
499 North Broad St.
Bremen, OH 43107

Attention: Rod Wilkins

e-mail: rwilkins@superiorfibers.com
Tel: # (740) 398-3809

Reference: RETOX Dual Chamber RTO System
Application: Process VOC Emissions
Our Reference: Proposal No. 13-9981 Addendum 1

Dear Mr. Wilkins:

We are pleased to submit our revised proposal covering the supply of one (1) RETOX 13.3 RTO95 dual chamber system manufactured by Adwest Technologies, Inc. for your process emission control project in Saltillo, Mexico. Adwest is part of the CECO Environmental Companies (www.cecoenviro.com), a global leader of air pollution control technology.

To offer a lower purchase price to Superior Fibers, Adwest is proposing to use a slightly smaller RTO box than was previously supplied, which will require a 150 hp fan to overcome the higher static pressure. The previously proposed fan was rated for 125 hp. The maximum exhaust flow that this new design can accommodate will be 13,300 scfm at 450° F and 4,500 ft. elevation asl.

Each weather tight RETOX system is shop-assembled on a compact skid which minimizes field assembly and installation costs and time. The system uses an energy saving forced draft fan design and utilizes a natural gas burner for rapid 80 minute cold start-up. An integral Allen Bradley PLC control system with telemetry features provides automatic system operation and remote diagnostics. Also there are no expensive catalyst, carbon bed additives or structured block media to replace and maintain.

Our RETOX systems have been successfully installed on over 800 VOC control applications since 1988 with such clients as Eastman Chemicals, Dupont, MASCO, Goodyear, Alcoa, ConAgra Foods, Kimberly Clark, Honda, Hexcel Composites, Sealed Air, Fender Musical Instruments, BP Oil, Kraft Foods, Kinder Morgan Pipeline, Devon Gas, and Saint-Gobain.

In summary, our RETOX systems provide a reliable, market proven, and low maintenance solution to VOC control including:

- **Fuel Savings more than 30% - With Natural Gas Injection (NGI)**
- **Flameless RETOX No Nitrogen Oxide (NOx) NGI Operation**
- **One (1) Fan (Process Fan) Operation -** Lower Operational Costs
- **Simple, Zero Leakage Poppet Valve Flow Control with/Five (5) Year Warranty**
- **Low Pressure Drop/Low Cost -** Turbulent Flow - random Ceramic HX Media
- **Rapid 80 Minute Cold Startup Capability** (15 Minute Warm Start)
- **Skid Mounted, Low Profile Design -** For Ground, Roof or Indoor Installation
- **Operate Up To 25% LEL Inlet Solvent Loadings** with Hot Gas Bypass
- **Proven Allen Bradley, Maxon, Siemens, and Honeywell Components**
- **24/7 RTO Technical Service Support -** With Lifetime Telemetry Diagnostics

We would be pleased to meet with you at your convenience, to further discuss this proposal and the RETOX system benefits and advantages. If you have any questions or would like additional information, please feel free to call me at the number below. We also invite you to visit our Anaheim, California engineering and fabrication facility to see RETOX systems firsthand and meet with our management and technical team.

Very truly yours,

ADWEST TECHNOLOGIES, INC.

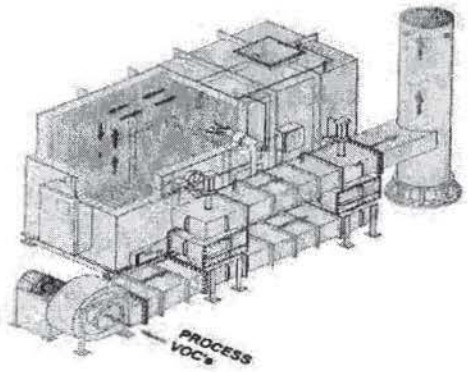
Richard G. Whitford
Vice President
rwhitford@cecoenviro.com
714-904-4263 Cell

CC: Brian Cannon Vice President Marketing and Sales (New York) 585-593-1405 bcannon@cecoenviro.com
Pete Krenitsky Sales Manager – West 714-632-9801 pkrenitsky@cecoenviro.com
Richard Whitford Vice Presidient 714-904-4263 rwhitford@cecoenviro.com

ADWEST TECHNOLOGIES, INC.

ANAHEIM, CALIFORNIA

RETOX
REGENERATIVE THERMAL OXIDIZER SYSTEM (RTO)



PROPOSAL FOR

SUPERIOR FIBERS

FOR
SALTILLO, MEXICO

(13,300 SCFM)

OUR REFERENCE: PROPOSAL NO. 13-9981 Addendum 1

March 4, 2013

CALIFORNIA STATE CONTRACTORS
LICENSE NO. A605780

Table of Contents

Retox System General Description 2

Equipment Pricing 4

Schedule 5

Design Criteria 7

Performance Guarantee 8

System Energy Calculation 10

Utility Requirements 11

Scope Of Supply 12

Description Of Equipment 13

Installation Specification 17

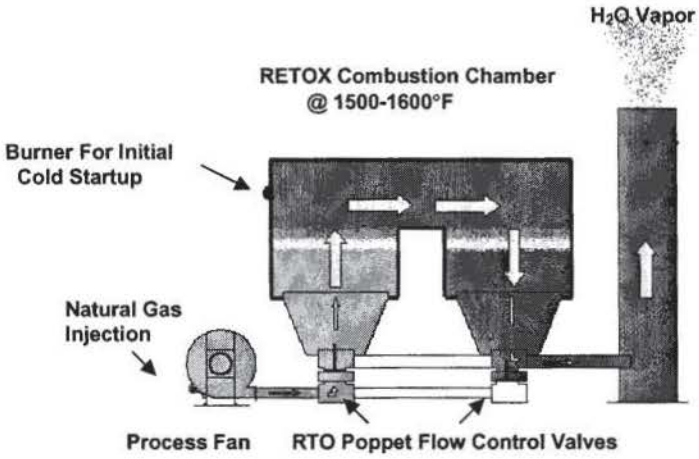
Scope Of Supply By Others 18

Standard Terms And Conditions Of Sale 19

RETOX SYSTEM GENERAL DESCRIPTION

INTRODUCTION

The RETOX System provides a proven and cost effective way for volatile organic compounds (VOC's) and solvent-laden gas to be converted into carbon dioxide and water vapor.



EQUIPMENT

The RETOX system consists of a reinforced, insulated dual chamber filled with low pressure drop ceramic heat exchanger media. The process gas flow is automatically controlled by a zero leakage poppet valve mechanism which changes the direction of the gas flow at regular intervals via an integral programmable logic control (PLC) system. An external burner is used only for a rapid initial cold startup, typically 80 minutes. Only one RETOX fan is needed for normal RTO operation (i.e. No purge or Combustion air blowers).

PROCESS COMBUSTION

Due to the abundant oxygen content of the process gas, complete combustion readily occurs when the ignition point is reached in the oxidizer (typically 1500-1600°F). Process hydrocarbons are converted to carbon dioxide and water vapor. With a sufficient concentration of solvents in the incoming process gas, the exotherm of the solvents will be enough so that the destruction of VOC's will be self-sustaining and no auxiliary heat energy is required from the fuel source.

HEAT RECOVERY

The high level of up to 97% heat recovery at full flow achieved is the result of regenerative heat transfer. The VOC laden process air enters a porous bed filled with high temperature ceramic heat transfer media. The air is preheated by bed #1 to a maximum temperature, passes through a central combustion chamber where the hydrocarbons are oxidized to carbon dioxide and water vapor, and then exits a second bed where heat is transferred from the hot air back into the bed. To avoid an uneven temperature distribution in the RTO, the gas flow direction is changed automatically at regular intervals by the poppet valve flow control mechanism to maintain even temperature profiles between the dual ceramic media chambers.

EQUIPMENT PRICING

A. RETOX SYSTEM

Total price for the supply of one (1) skid-mounted RETOX 13.3 RTO95 regenerative thermal oxidizer manufactured by Adwest as delineated in the attached engineering specification, F.O.B. Anaheim, California.

		13.3 RTO95
A-1	RETOX 13.3 RTO95 (As described on Page 12)	$ 334,880 USD
A-2	Startup and Training	$ 15,000 USD (to be purchased separately)

TERMS OF PAYMENT (Equipment Purchase Only)

Week No.	Date Due	Amount Due
1	3/08/13	$ 31,813.60
2	3/15/13	$ 31,813.60
3	3/22/13	$ 31,813.60
4	3/29/13	$ 31,813.60
5	4/05/13	$ 31,813.60
6	4/12/13	$ 31,813.60
7	4/19/13	$ 31,813.60
8	4/26/13	$ 31,813.60
9	5/03/13	$ 31,813.60
10	5/10/13	$ 31,813.60
5% With Start-up net 30 days (not to exceed 60 days from shipment)		$ 16,744.00
	Total	**$ 334,880 USD**

Start-up and training services by Adwest personnel are not included if you purchase equipment only. These services are available at $1,250.00 per day including travel time, plus travel expenses at cost.

Because of the volatility of Alloy and Stainless Steel prices the equipment price is good for 30 days after the date of this proposal.

SCHEDULE

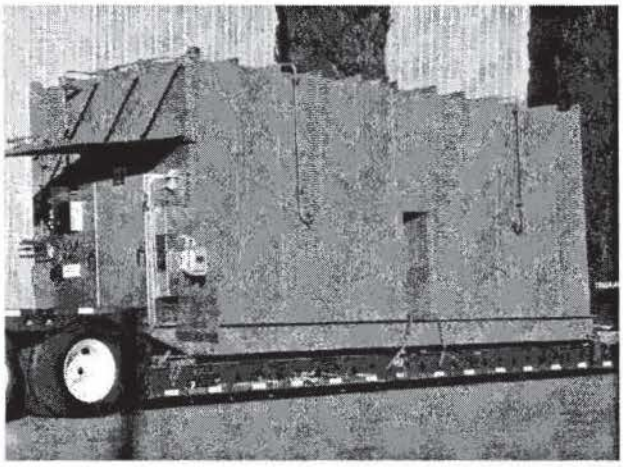
Shipment is estimated to be May 13, 2013. Our shipment, however, is subject to confirmation at time of award of purchase order. Adwest Technologies, Inc. will work with you to coordinate the RETOX shipment schedule to meet your VOC control compliance schedule. Freight is based on current costs. Actual freight costs will be invoiced at time of delivery.

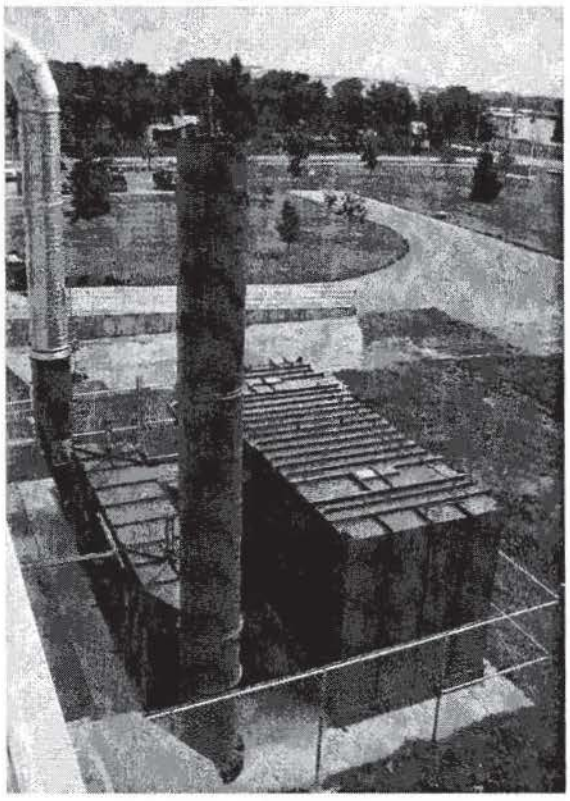
CONDITIONS OF SALE

Notwithstanding any other paragraph contained in this entire proposal, our Conditions of Sale, for the equipment shall be incorporated herein and shall be applicable. All quoted prices based on current costs are firm only if shipment is made within six-months from date of quotation.

POLICY OF CONTINUING QUALITY INNOVATION

In the interest of maintaining state of the art quality in our equipment, Adwest Technologies, Inc. reserves the right to revise these specifications and incorporate suggested changes to include the latest improvements in the equipment design vendor components and system hardware.





PROCEDURE AND INSURANCE REQUIREMENTS

Provisions must be made by Purchaser to ensure that condensation of the fumes and vapors does not occur on the ducting or heat transfer surfaces during the operation of this equipment. Should deposits of this nature take place, such that a potential of fire exists during running, upset or shutdown conditions, it will be necessary to install a fire extinguishing system to protect this equipment from damage. This system must be designed so that the extinguishing materials will not be allowed to enter the oxidizer, as damage to the equipment could result. These provisions are not included in this proposal.

The equipment selected will incorporate automatic features for protection and safety. However, while these features and their characteristics of operation afford a degree of safety, operation of the equipment is not to be considered free from all dangers and hazards inherent in the handling and firing of fuel. Proper operating techniques and maintenance procedures as specified in our manuals must be adhered to at all times.

NFPA 86 2011 Edition, Chapter 11 requires that the process exhaust be monitored for LEL (Lower Explosive Limit) if the LEL has the possibility to exceed 25%. Adwest strongly recommends LEL monitoring and in fact, it is required for streams over 25% LEL. We have not included the cost for LEL monitoring in this proposal but would be happy to quote this as an option if desired.

Should the obtaining of FM approval require special equipment not covered in this specification (i.e. fire protection equipment, electrical interlocking of the oxidizer to the system), the cost of this equipment and obtaining of all permits or approvals required for installation and/or operation of this equipment is the responsibility of others.

ERECTION ASSISTANCE AND START-UP

Any contract resulting from this proposal will require start-up by an Adwest Service Technician to validate our warranty and guarantees. This will require a technical service representative to be present at the time of initial start-up and must give release of operation of the equipment in accordance with the Seller's operating and maintenance manual.

SAFETY INSPECTIONS AND TESTING

RTO's are dependable and will provide reliable service for many years. In fact, users often forget it's part of their process as they operate with little attention for long periods. However this is only possible with routine maintenance and the National Fire Protection Association states that "documented safety inspections and testing shall be performed at least annually". (NFPA 86 Standard for Thermal Oxidizers 2011 Edition Chapter 10). Adwest will be able to give you this service by supplemental agreement. Please contact our office for further details.

DESIGN CRITERIA

The design criteria is for your emissions as supplied by Superior Fibers.

	RETOX 13.3 RTO95
Process Volume, (SCFM)	13,300
Process Gas Inlet Temp., °F	350-450
Solvent Loading #/Hr.	22-75
Solvent Composition	Formaldehyde, Methanol
Negative Pressure Upstream of oxidizer, ("w.c.)	-4.0

The solvent composition tabulated above has been assumed to have a solvent heat of combustion of 8,030 BTU/# net.

Because of their corrosive nature, compounds containing sulfur, halogens or organic acids may not be suitable for application in the oxidizer. Also, if low boiling hydrocarbons, **particulates** or **silicones** are present in the process stream such that the potential for condensation or plugging in the duct or media exists, these conditions should be reviewed by Adwest Technologies engineering.

NOTE: ***Adwest highly recommends the upfront purchase of a specific Spare Parts package for your RETOX system which can decrease potential oxidizer down times from three days to three hours, or less. Contact Adwest for Spare Parts list and current price.***

PERFORMANCE GUARANTEE

1.A We make the following Performance Guarantee: If all of the Performance Conditions are satisfied (See Page 6 "Design Criteria"), then the Equipment will reduce the concentration of hydrocarbons measured at the discharge stack of the Equipment as compared to the concentration of hydrocarbons measured at the inlet of Equipment by an average of 98% or down to 25 ppm as C_1 in the stack. The Performance Conditions are defined in this specification under the heading of "Design Criteria". The Equipment must be operated within design limits of 1500°F to 1600°F oxidation temperature. 1500°F should be specified for air quality permitting purposes.

1.B Nitrogen Oxides-We make the following NO_x Performance Guarantee: If all of the Performance Conditions are satisfied and the equipment is operated within design parameters as specified in the "Design Criteria" section, the equipment will perform such that the total concentration of NO_x as measured (i.e. uncorrected to 3% of oxygen) at the discharge stack will not exceed 2 PPMv. This guarantee is predicated upon an inlet NO_x concentration of 0 PPMv and no nitrogenated hydrocarbons or compounds including ammonia in the process exhaust.

2. The only Performance Guarantee made is that which is expressly stated in Paragraph 1A and 1B above. All other performance data contained in this Proposal or this Agreement or elsewhere are estimates or are for purposes of illustration only, and are not guaranteed.

3. The Performance Tests for determining whether the Performance Guarantee is satisfied shall be ineffective unless first reviewed and approved by us. We shall have the right and opportunity to witness the Performance Tests. In any event, the Performance Tests shall consist of simultaneous measurements of hydrocarbon solvent loadings at the inlet and discharge stack, and methane, ethane or other natural gas injection hydrocarbon contribution shall be deducted from the measurements at the discharge stack. Performance Tests shall be at your expense, except as provided in Paragraph 4 below, and if the Performance Tests for any unit of Equipment are not completed before the expiration of the Test Limitation Period for that unit, which shall expire 12 months from date of shipment, then that unit of Equipment shall be deemed to have satisfied the Performance Guarantee, and we shall have no further obligation under this Performance Guarantee as to that unit.

4. If any unit of Equipment does not satisfy the Performance Guarantee as determined by the Performance Tests, then we shall, at our option, either: (a) repair, replace, or modify such unit of Equipment until it satisfies the Performance Guarantee; or (b) pay you as liquidated damages in full satisfaction of all your claims arising out of failure to meet the Performance Guarantee, an amount equal to all payments made to us on this contract. If we elect to repair, replace, or modify such unit of Equipment, then the subsequent Performance Tests shall be administered at our expense (unless the failure was not caused by such unit of Equipment) until the Performance Guarantee is satisfied, at which time we shall have no further obligations under this Performance Guarantee as to that unit, and if after such repair, replacement, or modification the unit of Equipment fails to satisfy the Performance Guarantee, then we shall pay you liquidated damages per Clause (b) above. The remedies and obligations set forth in this Performance Guarantee are your exclusive remedies and our exclusive obligations in the event of failure of the Equipment to satisfy the Performance Guarantee.

5. ADWEST MAKES NO GUARANTEES ON ODOR REMOVAL WITHOUT SITE SPECIFIC PROCESS STREAM HYDROCARBON ANALYSIS AND COMPUTER MODELING.

SYSTEM ENERGY CALCULATION

These calculations are based on design process flow and solvent composition rates as provided by Superior Fibers.

		RETOX 13.3 RTO95			
1.	Process Flow Rate, SCFM	6,650	13,300	13,300	13,300
2.	Oxidizer Inlet Temp, °F	90	350	350	450
3.	Oxidizer Outlet Temp., °F	165	425	425	525
4.	Oxidation Temperature, °F	1,550	1,550	1,550	1,550
5.	Solvent Composition Rate, #/Hr.	Ø	25	50	75
6.	Heating Value of Solvent, Btu/#	–	8,030	8,030	8,030
7.	Net Energy from Solvent, MMBTU/Hr	0	0.20	0.40	0.60
8.	Energy Required, MMBTU/Hr	0.54	0.89	0.69	0.49
9.	Energy Cost/Hr @ $ 5.00/MMBTU	$ 2.70	$ 4.45	$ 3.45	$ 2.45
10.	Fan Horsepower	20	80.0	80	80
11.	Fan Energy Usage, KW	15	60	60	60
12.	Fan Energy Cost/Hr. @ $.09/KWH	$ 1.35	$ 5.40	$ 5.40	$ 5.40
13.	Total Operating Costs, $/Hr	$ 4.05	$ 9.85	$ 8.85	$ 7.85

NOTE:

1. *The above tabulation is for comparison purposes only and does not include casing heat losses.*
2. *For Air Quality permitting purposes, use a combustion chamber temperature of greater than 1500°F.*
3. *Maximum process flow turndown is 4:1.*

UTILITY REQUIREMENTS

Customer is to provide the following utilities for the oxidizer system.

1. Natural gas 3,844 SCFH @ 5 PSI minimum at natural gas piping connection on oxidizer (cold start-up/high fire condition)
2. Electricity at 480 volt 3 phase 60 HZ, 165 Full Load Amps to RTO control panel disconnect
3. Clean/dry compressed air 720 CFH @ 90 PSIG at air piping connection on oxidizer
4. Dedicated telephone line to RTO control panel for modem

MAXIMUM PROCESS FAN CONDITIONS

RETOX 13.3 RTO95

- 13,300 SCFM @ 70° F
- 21" w.c. total (-4.0" w.c. at fan inlet)
- 128 BHP @ 450°F and 4,500 ft. elevation

SCOPE OF SUPPLY

Type: One (1) Model RETOX 13.3 RTO95 regenerative oxidizer system with a nominal 95 percent thermal efficiency.

Weight: 60,000 pounds

Dimensions: 25'-6" long plus process fan
16'-2" wide
10'-8" high

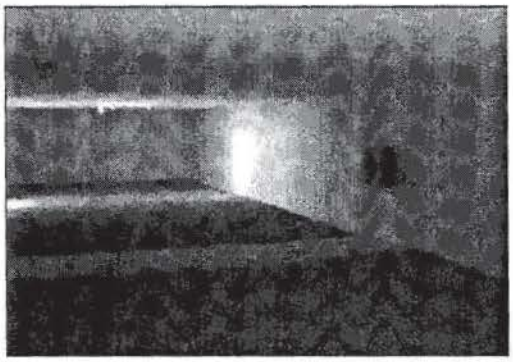
EQUIPMENT INCLUDED

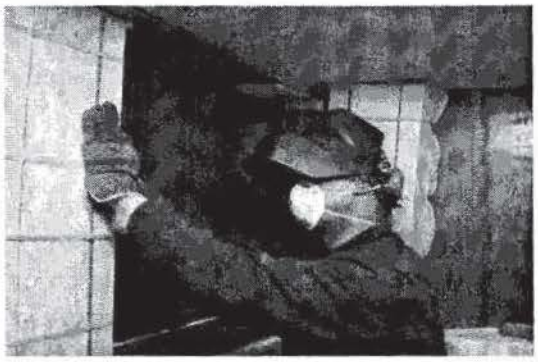
- Heat transfer media
- Bed casing
- Two 30" x 30" bed access doors
- Inlet and outlet plenums
- Casing insulation
- Nozzle mix natural gas burner with FM natural gas pipe train and combustion air blower (7.5 H.P.)
- Natural gas injection system
- Two (2) process flow control valves with pneumatic operators
- System controls including Allen Bradley programmable Compact Logix processor and Panelview PV-400 Monochrome Screen
- UL stamped control panel
- Telemetry system with remote diagnostics capability
- High temperature paint
- One installation, operation, and maintenance instruction manual and one (1) CD Copy
- Process fan, motor and 150 HP Variable Frequency Drive
- Process fan inlet box
- Fan to oxidizer transition
- Compressed air surge tank with controls
- Integral support skid
- Exhaust stack (ø34" x 35') with EPA Test Ports
- Make up air and blocking damper tee with controls
- Hot side heat exchanger bypass with controls
- Insulation of fan, fan to unit transition duct, makeup/blocking damper flow tee, poppet valve boxes, inlet ducting, and valve to oxidizer transition duct

DESCRIPTION OF EQUIPMENT

Heat Transfer Media-95% Heat Transfer Recovery

The high temperature heat transfer media supplied will consist of a silica/alumina media, sized and selected to provide the most efficient heat recovery and pressure drops for this application. When shipping limits permit, (units below 10,000 SCFM) the heat transfer media will be factory installed to reduce hours for field installation of the unit.





Bed Casing Insulation

The bed casings are internally insulated with 6 inches at 10.6 Lbs. density of compressed ceramic fiber insulation (Carborundum or equal) rated at 2300°F which is factory installed.

Bed Casing 3/16" Plate

The bed casing design consists of all-welded construction, externally stiffened to withstand the pressure requirements of the forced draft fan and the lateral loads from the heat transfer surface making up the beds.

Inlet and Outlet Plenums 3/16" Plate

The inlet and out plenums are designed to provide the most efficient flow distribution into and out of the porous bed and are constructed from externally stiffened carbon steel plates. The plenum walls do not require insulation for the LEL levels specified for this application.

Casing Access Openings 3/16" Plate

The ceiling structure of the upper plenum is constructed such that access to the heat transfer media and burner is available to perform routine inspections.

Burner Assembly

The burner is a nozzle mix style by Maxon and is utilized only for unit start-up. An FM designed natural gas piping train is also provided.

Natural Gas Injection System

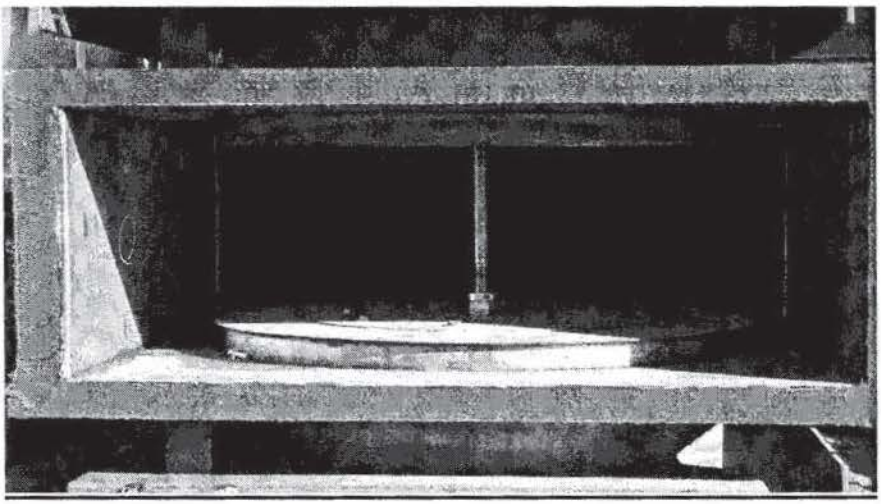
A natural gas injection system is utilized to allow the RETOX to be operated without the use of the main burner. This eliminates the need for combustion air and reduces the fuel consumption by more than 30%.

Bake-Out (As required)

The oxidizer control logic does include an off-line bake-out mode feature. This feature will allow the cold ends of the heat exchanger bed media to be elevated to a temperature of 600°F-700°F for the purpose of volatilizing (i.e. baking-out) any residual condensed organic hydrocarbons.

Two (2) Process Flow Control Poppet Valves

The oxidizer module contains two (2) control valves used to switch (regenerate) the direction of the process stream through the oxidizer and the two (2) chambers of ceramic heat transfer media. The valves are operated by two pneumatic actuators requiring clean, dry compressed air at 720 CFH, -40°F and 90 psig. If the air is not dry, freeze protection may be required and is not included. These valves are guaranteed for five years, and do not require a purge air fan. They can be worked on and adjusted without cooling down the RTO.



System Controls and Instrumentation

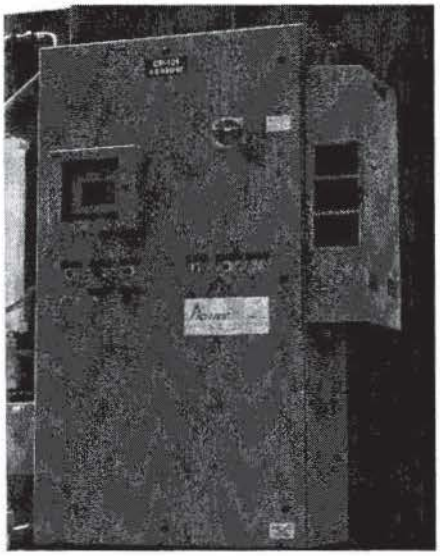
The control panel (located on the oxidizer) is prewired, labeled, shop simulation tested, complete and ready for connections to plant power source. Control panel not to be mounted in direct sunlight. Based on RTO orientation customer shading maybe required. The panel will be designed to NEMA 3R standards and suitable for outdoor installation. The panel will contain the following:

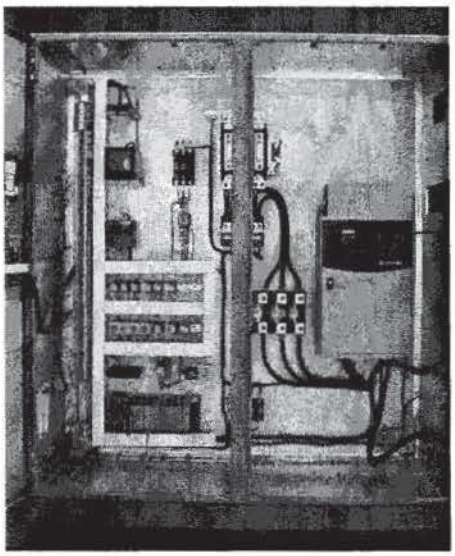
Door mounted items

- Selection switches for mode of operation
- Allen Bradley Panelview 400 Monochrome man-machine interface
- Selection push buttons for process blower, burner/start/stop and maintenance reset.
- Fault push-button

Internal mounted

- Main incoming 460v fused disconnect, 3-phase
- Honeywell flame safeguard
- Honeywell Burner management system
- Combustion air motor starter/disconnect
- Allen-Bradley Compact Logix (Ethernet) processor having telemetry capabilities
- Panel heater
- Paperless temperature recorder with three channels
- Control power transformer (120v)
- Modem
- Variable frequency drive





Other items include flow diversion valves with solenoids, hand valve, filter, and regulator, for the compressed air piping train. Also included is a low compressed air pressure switch, proof of air flow differential pressure switch, high temperature limit switch mounted in the exhaust, and miscellaneous thermocouples. Controls of the thermal oxidizer shall be based on Adwest's standard design, programming and P & ID philosophy.

The Allen Bradley computer is supplied with a telemetry system which allows the Adwest service department to remotely monitor the system operation. A telephone line to the control panel is required to enable Adwest personnel to communicate and remotely make program changes if required during start-up or future trouble shooting.

Fan, Motor and Drive

The oxidizer is equipped with a heavy duty, forced draft Industrial Blower (Twin Cities or equal). The fan includes a drive motor and guards. The drive motor is equipped with a 460 volt, three-phase, 60 Hertz power supply.

Process Fan to Unit Duct

The process fan to unit duct is fabricated from 3/16" carbon steel. The duct is supplied with a predrilled flange for ease of connection. External insulation of process fan and fan to unit duct is by others if required.

Paint

All exposed surfaces of the oxidizer will be coated with two (2) coats of our standard high temperature paint (black, brown, and gray). The stack will be manufactured from carbon steel.

Installation, Operation and Maintenance Instruction Manuals

The Adwest Technologies Technical Services Department will furnish one (1) hard copy and one (1) CD Copy of the operation and maintenance instruction manual.

INSTALLATION SPECIFICATION

Applies Only If Installation Option Has Been Purchased (p. 4)

To Be Furnished By Adwest Technologies, Inc.

1. Mechanical and electrical erection of one (1) RETOX system, ground-mounted at your plant including filling of heat exchanger media, forced draft oxidizer fan with motor, controls, stack, start-up, training, rigging, and engineering.

2. Electrical installation of main control panel at the oxidizer unit, thermocouples and actuators and NEMA 3R AC drive for process air blower.

3. Services of an Adwest Technologies field serviceman to perform initial equipment startup.

4. Erection management services to integrate activities of Adwest for the successful and timely completion of the project.

5. Non-union labor, tools and material necessary to unload, position and install equipment supplied by Adwest Technologies, Inc.

6. All work is based on standard weekday labor and does not include premium time utilized to expedite the installation.

7. Inspection of all equipment as it arrives on the jobsite with respect to shipping damage and completeness of shipments in accordance with the bill-of-lading.

8. Non-union labor, equipment and material necessary to touch-up marked areas on equipment.

9. Adwest start-up personnel to conduct classroom and equipment training sessions with customer operating personnel not to exceed one day.

SCOPE OF SUPPLY BY OTHERS

The Following Work is Not Included Whether Installation Is Purchased Or Not

1. Lighting and convenience outlets.
2. Free and unobstructed access to the work site, including maintained storage areas and roadways. Ground conditions shall be suitable for heavy equipment operation.
3. Power supply of 460 volt, 60 cycle, three-phase and 120v, 60 cycle, single phase.
4. Provisions for obtaining FM, CSA, TSSA, IRI, OSHA or other required approvals.
5. Facilities for erection supervision, equipment staging and storage.
6. Natural gas at 5 Psig and clean dry compressed air at 90 Psig.
7. All city, county and EPA, operator permits and associated costs.
8. UL approval of oxidizer if required.
9. Sales Tax, duties, personal, and corporate income taxes, etc. on project.
10. Air Board Compliance testing.
11. Utilities brought to and terminated at the RTO connection points.
12. Process duct brought to RTO inlet flange and duct insulation if required.
13. All electrical power disconnects.
14. Concrete foundations and/or steel support platforms. Stack mounting bolts.
15. Gas fired ovens, dryers, etc. must have separate purge fans and atmospheric dampers to comply with NFPA codes.
16. Our steel supply is designed for our equipment loadings only. No external loads are to be applied.
17. Personnel protection, security fencing and lighting.
18. Freight.
19. All other items and services not specifically included by Adwest scope of supply.

STANDARD TERMS AND CONDITIONS OF SALE

ARTICLE 1-DEFINITIONS

1.1 The words "we", "our", and "us", mean the Seller.
1.2 The words "you", "your", and "yours" mean the Purchaser to whom this Proposal is made.
1.3 The word "agreement" means the agreement under which we provide you with Goods and/or Services, and includes these Standard Terms and Conditions of Sale and all documents expressly incorporated by reference and all attachments.
1.4 The word "Goods" means the goods or equipment which we will provide to you under the Agreement.
1.5 The word "Services" means installation, start-up, training, supervision, engineering, and/or services which we will provide to you under the Agreement.
1.6 The word "Affiliate" means any entity which controls or is controlled by or is under the common control with us.

ARTICLE 2-DURATION OF PROPOSAL EFFECT

2.1 We may withdraw this Proposal at any time until we receive your written acceptance.
2.2 If we do not receive your written acceptance within 30 days of the date of this Proposal, the Proposal will expire and be void.
2.3 Any changes which you wish to make to any Proposal must be expressly accepted by us in writing; otherwise those changes will be void.

ARTICLE 3-SHIPMENT AND DELIVERY

3.1 Our proposed shipping schedule depends on the date on which you accept our Proposal.
3.2 If you do not provide us promptly with all drawings, information, and approvals, then you will be responsible if we fail to meet our proposed shipping schedule.
3.3 We will deliver the Goods F.O.B. points of shipment. This will be the only delivery which we are required to make to you. Title and risk of loss will pass to you when we make this delivery.
3.4 Once an equipment ship date has been established and materials have been released for manufacture, we are not able to defer shipment or store equipment on-site. Customer will be responsible for equipment storage and handling if not prepared to accept equipment based upon the agreed ship date. Shipping to storage will constitute equipment shipped for all purposes including payment, ownership, and risk of loss.

ARTICLE 4-TERMINATION

4.1 You may not terminate or cancel the Agreement except by giving us written notice.
4.2 If you terminate or cancel without cause, you must pay us for our cost of labor, materials, engineering, administration, and overhead incurred up to the date we receive your written notice, together with a reasonable profit on these costs. These costs include any termination or cancellation charges from our vendors. If you request, we will provide you with documentation in support of these costs.

ARTICLE 5-DELAYS

5.1 We will not be in default and we will not be liable to you for loss or damage which results from delay or failure to perform any of our obligations, if this delay or failure is caused by one or more circumstances beyond our reasonable control ("Force Majeure").
5.2 Force Majeure includes, without limitations, acts of God, war acts of the public enemy, civil disorder, riot, sabotage, governmental action or law or regulation, strikes or labor shortage or other labor problems, fire, flood, earthquake, severe weather, health and safety considerations, embargoes, transportation shortage or delay, fuel or material shortage, failure of performance by a vendor or subcontractor, and your failure to give timely approval and comment to documents.
5.3 Our time of performance will be extended by the length of any delay caused by Force Majeure plus a reasonable time to resume our normal operations.
5.4 If we are ready to ship, but shipment is delayed through no fault of ours, the date which we are ready to ship will be regarded as the date of shipment and delivery for all purposes, including payment. You will be responsible for the cost and risks of storage and handling and risk of loss commencing with that date.

ARTICLE 6-LIMITED WARRANTY

6.1 We warrant to you that the Goods will be delivered free from defects in material and workmanship.
6.2 If you discover a defect in material or workmanship during the Warranty period (set forth below) you must give us written notice within 10 days. We will, at our option either deliver to you a replacement part, F.O.B. point of shipment, and installation thereof shall be your responsibility, or repair the defect in place or elsewhere. You will provide work area, utilities, and access and egress to enable us to perform our obligation under this Section 6.2.
6.3 The warranty period will expire:
- (i) for the purchase of original Goods, the earlier of 12 months from initial operation or 18 months from the date of delivery.
- (ii) for the purchase of repair or replacement Goods, 12 months from date of delivery.

6.4 We will have no obligations to you under Section 6.1 and 6.2 if:
- (i) you fail to operate or maintain the Goods in accordance with generally approved industry practice, as included in Owners Manual; or
- (ii) you fail to operate or maintain the Goods in accordance with instruction from us; or
- (iii) The initial start-up and commissioning of the equipment is not performed by an employee of Adwest Technologies, Inc.
- (iv) you fail to give us notice within 10 days of your discovery of a defect; or
- (v) the Goods or any component of the Goods have been altered, repaired, or fabricated by someone other than us; or
- (vi) the Goods have been installed by someone other than us, and installation is not done in accordance with our instructions; or
- (vii) the defect relates to corrosion, erosion, fouling, and/or plugging of the Goods or to a fire or explosion relating to such corrosion, erosion, fouling, or plugging

6.5 We warrant to you that at delivery, the Goods will be free of any liens or encumbrances. If there are any such liens or encumbrances, we will cause them to be discharged promptly after you have notified us of their existence.

6.6 We warrant to you that the Warranty Services, if any, will be performed in a good and workmanlike manner. If within the Warranty Period you discover that any portion of the Services was not performed in a good workmanlike manner, you must give us notice within 10 days of your discovery and we will perform again that portion of the Services.

6.7 We make no guarantee or warranty of the performance of the Goods except as may be expressly set forth as a Performance Guarantee elsewhere in the Agreement. Any other data and information pertaining to performance of the Goods, whether stated in the Agreement or elsewhere, are for purposes of illustration or estimate only, and are not guaranteed.

6.8 THE EXPRESS WARRANTIES WE MAKE TO YOU IN THIS ARTICLE 6 AND THE PERFORMANCE GUARANTEE, IF ANY, REFERRED TO IN SECTION 6.7, ARE THE ONLY WARRANTIES OR GUARANTEES WE WILL MAKE. THERE ARE NO OTHER WARRANTIES OR GUARANTEES, WHETHER STATUTORY, ORAL, WRITTEN, EXPRESS, OR IMPLIED. IN PARTICULAR, THERE ARE NO IMPLIED WARRANTIES OF MECHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO STATUTORY, ORAL OR IMPLIED CONDITIONS. THERE ARE NO IMPLIED WARRANTIES AGAINST REDHIBITORY DEFECTS, VICES, OR DEFECTS, HIDDEN OR OTHERWISE.

6.9 The remedies we provide to you in Section 6.2, 6.5, and 6.6 and the remedies we expressly provide in connection with the Performance Guarantee, if any, as referred to in Section 6.7, are the only remedies you will have in the event of a breach of warranty or Performance Guarantee.

ARTICLE 7-LIMITATION OF LIABILITY

7.1 For purpose of the Article 7, the words "we", "our", "ours", and "us" mean the Seller and its Affiliates, and their employees, agents, subcontractors, and suppliers.

7.2 Our liability to you under the Agreement or under any cause of action relating to the Agreement, whether based on contract, warranty, tort (including negligence) strict liability, indemnity, or otherwise, will not exceed the price of the Goods and Services.

7.3 We will not be liable to you under the Agreement or under any cause of action relating to the subject matter of the Agreement, whether based on contract, warranty (including warranty against prohibitory defects or vices), tort (including negligence) strict liability, indemnity, or otherwise for loss of profits or revenue or business opportunity, loss by reason of shutdown of your facilities or inability to operate your facilities at full capacity, cost of obtaining other means for performing the function of the Goods, claims of your customers, or incidental or consequential damages of any nature.

7.4 We will not be liable to you for any loss or damage relating to any portion or component of the Goods or Services which you sustain after the expiration of the Warranty Period pertaining to such portion or component of the Goods or Services.

7.5 You will have waived your right to sue us at law or in equity under the Agreement or under any cause of action relating to the subject matter of the Agreement unless you commence your suit within one year from the date on which you sustain the loss or damage which is the subject of your suit.

7.6 The provisions of this Article 7 shall prevail over any inconsistent provisions elsewhere in the Agreement.

ARTICLE 8-PERMITS: ENVIRONMENTAL AND SAFETY RESPONSIBILITIES

8.1 You will (at your expense) obtain and maintain in force all permits and approvals necessary for the installation and operation of the Goods, and the performance of the Services, and disposal of waste products.

8.2 If you fail to perform your obligations under Section 8.1, or if you fail to do the following:

(i) operate Goods in compliance with all applicable laws, rules, regulations, permits and approvals, and with operating instructions (including safety-related instructions) which we issue from time to time.

(ii) dispose of any waste products in compliance with all applicable laws, rules, regulations, permits and approvals

(iii) in operating the Goods and disposing of the waste products, avoid contributing to air or water pollution any conditions which is hazardous to health; then you will indemnify us and hold us harmless and defend us at your expense from any claim, suit, or liability or penalty which may result from such failure.

ARTICLE 9-TAXES

9.1 You will pay all sales, use, value added, excise, and other taxes, which may be levied or assessed on the transfer of Goods to you, or on the performance of the Services or on the Agreement, or on our performance under the Agreement. Our price to you does not include any such taxes, unless specifically stated otherwise in the Agreement.

ARTICLE 10-PATENTS

10.1 We will defend you against any suit which claims that the Goods infringe any United States patent. We will satisfy any judgment for damages entered against you in such suit. If such judgment enjoins you from using the Goods, then we shall at our option:

(i) obtain for you the right to continue using the Goods; or

(ii) eliminate the infringement by replacing or modifying all or part of the Goods; or

(iii) take back the Goods and refund to you all payments on the price which we have received. In this event, neither you nor we will have any claim against the other under the agreement or arising out of the subject matter of the Agreement.

10.2 We will have no obligation under this Article 10 if you fail to notify us promptly of any claim or suit for infringement of if you fail to cooperate with us in conducting the defense, or if infringement results from:

(I) use of the Goods except in accordance with our instructions to you: or

(ii) any change made to the Goods after we make delivery; or

(iii) any portion of the Goods made pursuant to your design

10.3 The remedies which we provide to you in this Article 10 are the only remedies you will have in the event of any infringement claim.

ARTICLE 11-CHANGES

11.1 We will not make changes in the Goods or Services unless you and we have executed a written Change Order for such change.

11.2 The Change Order will include a price adjustment for any added costs of the change plus a reasonable profit.

11.3 If the change impairs our ability to satisfy our obligations to you, including meeting, delivery schedules and any Performance Guarantees, the Change Order will include appropriate modifications to the Agreement.

11.4 If after the earlier of either (I) the date of the Proposal on which the Agreement is based or (ii) the date of the Agreement, new or revised governmental or code requirements shall require a change in the Goods, the change will be the subject of a Change Order pursuant to this Article 11.

ARTICLE 12-CONFIDENTIALITY; USE OF DRAWINGS

12.1 You acknowledge that the information which we submit to you in connection with the Proposal for this Agreement includes our confidential and proprietary information, both of a technical and commercial nature.

12.2 You will not disclose our confidential and proprietary information to third parties without prior written consent.

12.3 You will not permit any third party to fabricate components of the Goods from our drawings. You will indemnify us and hold us harmless and defend us from any claim, suit, liability based on personal injury (including death) or property damage related to any component of the Goods which is fabricated by a third party without prior written consent.

12.4 The Goods may contain software and related instructions and other material which we and our suppliers have provided. Your use thereof shall be subject to license conditions and other restrictions which we and our suppliers may impose as required to maintain confidentiality.

ARTICLE 13-EQUAL EMPLOYMENT OPPORTUNITY COMPLIANCE

13.1 We shall at all times comply with the requirements of Executive Order 11246.

ARTICLE 14-END USER

14.1 If you are not the End User of the Goods and Services, then you will use your best efforts to obtain the End User's consent to be bound to us by the provisions of Article 6, Article 7, and Article 8 ("End User Consent").

14.2 If you do not obtain such End User Consent, then you shall indemnify us and our Affiliates and our agents, employees, subcontractors, and suppliers from any liability, cost, loss, or expense for which we would not have been liable or from which we would have been indemnified if you had obtained the End User Consent.

ARTICLE 15-ENTIRE AGREEMENT

15.1 The Agreement contains the entire understanding between you and us, and supersedes any prior oral or written understandings between you and us concerning the Goods and Services including any document which is not expressly incorporated by reference into this Agreement.

15.2 No modifications to the Agreement will be effective unless in writing duly executed by you and us.

15.3 The Agreement is binding on the parties and their respective successors assigns.

ARTICLE 16-INVALIDITY

16.1 If a final decision of a court of competent jurisdiction holds valid a portion of any sentence of this Agreement, or a sentence of any section of the Agreement, or a section of any Article, or any Article of this agreement, the remainder of such sentence or section or Article of this Agreement, as the case may be, shall be valid.

ARTICLE 17-GOVERNING LAW

17.1 The Agreement will be governed by and construed according to the laws of the State of California.

ARTICLE 18 – PAYMENT

18.1 Unless otherwise stated in the Agreement, payment shall be due seven (7) days from date of invoice. We reserve the right to add a late charge of 1 ½ % of the principal amount due at the end of each month, or the maximum allowable legal interest rate, if a lesser amount, to any account outstanding beyond the due date. If we must resort to legal action to collect amounts due, all reasonable costs and expenses, including attorneys' fees and interest, shall be added to the Purchase Price.

Attachment M
Air Pollution Control Device Sheet
(OTHER COLLECTORS)

Control Device ID No. (must match Emission Units Table):CD-4

Equipment Information

1. Manufacturer: Superior Fibers Model No. NA	2. Control Device Name: Filter Type: Filter Media Oil Mist Separator
3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.	
4. On a separate sheet(s) supply all data and calculations used in selecting or designing this collection device.	
5. Provide a scale diagram of the control device showing internal construction.	
6. Submit a schematic and diagram with dimensions and flow rates.	
7. Guaranteed minimum collection efficiency for each pollutant collected: 90%	
8. Attached efficiency curve and/or other efficiency information. NA	
9. Design inlet volume: 1365 SCFM	10. Capacity: 1365 SCFM
11. Indicate the liquid flow rate and describe equipment provided to measure pressure drop and flow rate, if any. NA	
12. Attach any additional data including auxiliary equipment and operation details to thoroughly evaluate the control equipment. NA	
13. Description of method of handling the collected material(s) for reuse of disposal. All material collected from equipment is placed in designated containment device and taken to approval landfill.	

Gas Stream Characteristics

14. Are halogenated organics present?	☐ Yes	☒ No
Are particulates present?	☒ Yes	☐ No
Are metals present?	☐ Yes	☒ No

15. Inlet Emission stream parameters:	Maximum	Typical
Pressure (mmHg):	Unknown	Unknown
Heat Content (BTU/scf):	NA	NA
Oxygen Content (%):	NA	NA
Moisture Content (%):	Unknown	Unknown
Relative Humidity (%):	Unknown	Unknown

16. Type of pollutant(s) controlled: ☒ Particulate (type): Oil Mist		☐ SO_x	☐ Odor ☐ Other
17. Inlet gas velocity:	1365	ft/sec	18. Pollutant specific gravity: 0.91 to 1.15
19. Gas flow into the collector: 1365 ACF @ ambient °F and <15 PSIA			20. Gas stream temperature: Inlet: Ambient + 20°F Outlet: Ambient + 20°F
21. Gas flow rate: Design Maximum: 1365 ACFM Average Expected: 1365 ACFM			22. Particulate Grain Loading in grains/scf: Inlet: Unknown Outlet:

23. Emission rate of each pollutant (specify) into and out of collector:

Pollutant	IN Pollutant		Emission Capture Efficiency %	OUT Pollutant		Control Efficiency %
	lb/hr	grains/acf		lb/hr	grains/acf	
A Total PM	30	2.564	Approx 100% of overspray	3.0	0.256	90
B VOC	5	NA	Approx 100% of overspray	5.0	NA	0
C						
D						

24. Dimensions of stack: Height 32 ft. Diameter 1 ft.

25. Supply a curve showing proposed collection efficiency versus gas volume from 25 to 130 percent of design rating of collector.

Particulate Distribution

26. Complete the table:	Particle Size Distribution at Inlet to Collector	Fraction Efficiency of Collector
Particulate Size Range (microns)	**Weight % for Size Range**	**Weight % for Size Range**
0 – 2	Unknown	Unknown
2 – 4		
4 – 6		
6 – 8		
8 – 10		
10 – 12		
12 – 16		
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		

27. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):
None

28. Describe the collection material disposal system: All material collected from equipment is placed in designated containment device and taken to approved landfill.

29. Have you included ***Other Collectores Control Device*** in the Emissions Points Data Summary Sheet? Yes

30. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING: None	RECORDKEEPING: None
REPORTING: None	TESTING: None

MONITORING:	Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.
RECORDKEEPING:	Please describe the proposed recordkeeping that will accompany the monitoring.
REPORTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.
TESTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.

31. Manufacturer's Guaranteed Control Efficiency for each air pollutant.
90% for Total PM (estimated)

32. Manufacturer's Guaranteed Control Efficiency for each air pollutant.
90% for Total PM (estimated)

33. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
None.

ATTACHMENT N – SUPPORTING EMISSION CALCULATIONS

ATTACHMENT N – SUPPORTING EMISSION CALCULATIONS

Change in GMF-1 – GMF-28 Calculation methods

In the original application for R13-2501, emission unit GMF-1 – GMF-28 – Glass Melt Units used varies AP-42 Glass Manufacturing emission factors for emission estimates.

Superior Fibers believes these emission factors were incorrectly applied to the Glass Melt Units. The facility proposes to utilize AP-42 Natural Gas combustion factors for the glass melt units. Below is the justification.

Glass Fiber Manufacturing Chapter 11.13
Emission Factors for CO, NO_x, SO_2 and PM was based Table 11.13.4 [CO and NO_x – textile, gas unit melter] and Table 11.13.2 [PM – textile, gas unit melter]. SO_2 are based on Table 11.13.4 [textile – Gas-recuperative] because there was no data for a unit melter type. These factors are based on virgin raw materials being used in the glass manufacturing process.

In the glass melting furnace, raw materials are heated to temperatures ranging from 1500 to 1700°C (2700 to 3100°F) and are transformed through a sequence of chemical reactions to molten glass. Although there are many furnace designs, furnace designs, furnaces are generally large, shallow, and well-insulated vessels that are heated from above. In operations, raw materials are introduced continuously on top of a bed of molten glass, where they slowly mix and dissolve. Mixing is effected by natural convention, gases rising from chemical reactions, and, in some operations, by air injection into the bottom of the bed.

Glass Manufacturing Chapter 11.15
The emission factor for VOCs was based on AP-42 Chapter 11.15 Table 11.15-2 [Pressed and blown – Uncontrolled] because no data was available for Glass Fiber Manufacturing furnace.

The furnace most commonly used is a continuous regenerative furnace capable of producing between 45 and 272 megagrams (Mg) (50 and 300 tons) of glass per day. A furnace may have either side or end ports that connect brick checkers to the inside of the melter. The purpose of brick checkers (Figure 11.15-3 and Figure 11.15-4) is to conserve fuel by collecting furnace exhaust gas heat that, when the air flow is reversed, is used to preheat the furnace combustion air. As material enters the melting furnace through the feeder, it floats on the top of the molten glass already in the furnace. As it melts, it passes to the front of the melter and eventually flows through a throat leading to the refiner. In the refiner, the molten glass is heat conditioned for delivery to the forming process. Figures 11.15-3 and 11.15-4 show side port and end port regenerative furnaces.

The Glass Melt Units at the Reedsville facility processes cullet glass. The US EPA recognizes the use of cullet glass as an energy saving option for glass manufacturing.

Each glass melt unit utilizes 0.15 MM Btu/hr natural gas burners and operates in a temperature range of 2200° to 2300° F. In addition the units at Reedsville are much smaller than the units in a plate glass facility, producing an order of magnitude less glass than the plate glass facility

Superior Fibers proposed to use AP-42 Natural Gas combustion factors to estimate Glass Melt Unit emissions for all pollutants.

Emission Point ID# (Source ID #)	**Source Name**	**Pollutant**	**Hourly Emissions (lb/hr)**	**Annual Emissions (ton/year)**	**Source**	Change in Calculations	Reason
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	Carbon Dioxide	731.11	3202.2474	40 CFR 98 Subpart C - Eq.C-1	Yes.	Added document PTE below 40 CFR 98 report and GHG PSD requirements
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	Carbon Monoxide	0.51	2.25	R13-2501A Permit	Yes.	Separated Curing Oven and RTO
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	Formaldehyde	0.46	2.01	R13-2501A Permit	Yes.	Separated Curing Oven and RTO
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	Methane	0.01	0.0603515	R13-2501A Permit	Yes.	Added document PTE below 40 CFR 98 report and GHG PSD requirements
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	Methanol	0.436	1.91	R13-2501A Permit	Yes.	Separated Curing Oven and RTO
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	N2O	0.00	0.00603	40 CFR 98 Subpart C - Eq.C-1	Yes.	Added document PTE below 40 CFR 98 report and GHG PSD requirements
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	Nitrogen Oxides	3	13.1	R13-2501A Permit	Yes.	Separated Curing Oven and RTO
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	Particulate Mattter-10	0.06	0.27	R13-2501A Permit	Yes.	Separated Curing Oven and RTO
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	Sulfur Dioxide	0.01	0.03	R13-2501A Permit	Yes.	Separated Curing Oven and RTO
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	VOC	6.97	20.2	R13-2501A Permit	No	
EP-2(Spray-1)	Adhesive Oil Spraying Station	Particulate Mattter-10	2.5	4.563	R13-2501A Permit	No	
EP-2(Spray-1)	Adhesive Oil Spraying Station	VOC	5	9.125	R13-2501A Permit	No	
EP-3 (Boiler-1)	Natural Gas Fired Boiler	Carbon Dioxide	350.93	1537.081	40 CFR 98 Subpart C - Eq.C-1	Yes.	Added document PTE below 40 CFR 98 report and GHG PSD requirements
EP-3 (Boiler-1)	Natural Gas Fired Boiler	Carbon Monoxide	0.25	1.082	R13-2501A Permit	No	

Emission Point ID# (Source ID #)	Source Name	Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (ton/year)	Source	Change in Calculations	Reason
EP-3 (Boiler-1)	Natural Gas Fired Boiler	Methane	0.007	0.029	40 CFR 98 Subpart C - Eq.C-8	Yes.	Added document PTE below 40 CFR 98 report and GHG PSD requirements
EP-3 (Boiler-1)	Natural Gas Fired Boiler	N2O	0.0007	0.0029	40 CFR 98 Subpart C - Eq.C-8	Yes.	Added document PTE below 40 CFR 98 report and GHG PSD requirements
EP-3 (Boiler-1)	Natural Gas Fired Boiler	Nitrogen Oxides	0.29	1.288	R13-2501A Permit	No	
EP-3 (Boiler-1)	Natural Gas Fired Boiler	Particulate Mattter-10	0.02	0.098	R13-2501A Permit	No	
EP-3 (Boiler-1)	Natural Gas Fired Boiler	Sulfur Dioxide	0.002	0.008	R13-2501A Permit	No	
EP-3 (Boiler-1)	Natural Gas Fired Boiler	VOC	0.02	0.071	R13-2501A Permit	No	
EP-4 (Hood-1)	Mat Let-Off Table	Formaldehyde	0.01	0.044	R13-2501A Permit	No	
EP-4 (Hood-1)	Mat Let-Off Table	VOC	0.05	0.22	R13-2501A Permit	No	
EP-5 (Hood -2)	Pulling & Expanding Station	Formaldehyde	0.01	0.044	R13-2501A Permit	No	
EP-5 (Hood -2)	Pulling & Expanding Station	VOC	0.05	0.22	R13-2501A Permit	No	
None (Drum-1 - Drum-28)	Total Glass Fiber Forming Emissions	Formaldehyde	0.001	0.001	R13-2501A Permit	No	
None (Drum-1 - Drum-28)	Total Glass Fiber Forming Emissions	Particulate Mattter-10	1.27	5.56	R13-2501A Permit	No	
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	Carbon Dioxide	491.3	2151.89	40 CFR 98 Subpart C - Eq.C-1	Yes.	Added document PTE below 40 CFR 98 report and GHG PSD requirements
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	Carbon Monoxide	0.84	3.68	R13-2501A Permit	Yes.	Changed to Natural Gas Combustion AP-42 Emission Factors
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	Methane	0.009	0.04	40 CFR 98 Subpart C - Eq.C-8	Yes.	Added document PTE below 40 CFR 98 report and GHG PSD requirements
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	N2O	0.0009	0.0004	40 CFR 98 Subpart C - Eq.C-8	Yes.	Added document PTE below 40 CFR 98 report and GHG PSD requirements
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	Nitrogen Oxides	18.2	79.72	R13-2501A Permit	Yes.	Changed to Natural Gas Combustion AP-42 Emission Factors
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	Particulate Mattter-10	5.6	24.53	R13-2501A Permit	Yes.	Changed to Natural Gas Combustion AP-42 Emission Factors

Emission Point ID# (Source ID #)	Source Name	Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (ton/year)	Source	Change in Calculations	Reason
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	Sulfur Dioxide	2.8	12.26	R13-2501A Permit	Yes.	Changed to Natural Gas Combustion AP-42 Emission Factors
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	VOC	0.28	1.23	R13-2501A Permit	Yes.	Changed to Natural Gas Combustion AP-42 Emission Factors
TV-1	Forming Mold Oil Storage Tank	VOC	1	0.1	R13-2501A Permit	Yes.	Reflect increased throughput
TV-2	Bulk Resin Storage Tank	Formaldehyde	0.002	0.009	R13-2501A Permit	Yes.	Reflect increased throughput
TV-2	Bulk Resin Storage Tank	VOC	0.01	0.045	R13-2501A Permit	Yes.	Reflect increased throughput
TV-3	Bulk Resin Storage Tank	Formaldehyde	0.002	0.009	R13-2501A Permit	Yes.	Reflect increased throughput
TV-3	Bulk Resin Storage Tank	VOC	0.01	0.045	R13-2501A Permit	Yes.	Reflect increased throughput
TV-4	Bulk Resin Storage Tank	Formaldehyde	0.002	0.009	R13-2501A Permit	Yes.	Reflect increased throughput
TV-4	Bulk Resin Storage Tank	VOC	0.01	0.045	R13-2501A Permit	Yes.	Reflect increased throughput
TV-5	Ethlyene Glycol Storage Tank	VOC	1	0.1	R13-2501A Permit	Yes.	Reflect increased throughput
TV-6	Adhensive Oil Storage Tank	VOC	1	0.1	R13-2501A Permit	Yes.	Reflect increased throughput
TV-7	Adhensive Oil Storage Tank	VOC	1	0.1	R13-2501A Permit	Yes.	Reflect increased throughput
TV-8	Waste Oil Stoarge Tank	VOC	1	0.1	R13-2501A Permit	Yes.	Reflect increased throughput
TV-9	Binder Mix Tank	Formaldehyde	0.002	0.009	R13-2501A Permit	Yes.	Reflect increased throughput
TV-9	Binder Mix Tank	VOC	0.01	0.045	R13-2501A Permit	Yes.	Reflect increased throughput
TV-10	Binder Mix Tank	Formaldehyde	0.002	0.009	R13-2501A Permit	Yes.	Reflect increased throughput
TV-10	Binder Mix Tank	VOC	0.01	0.045	R13-2501A Permit	Yes.	Reflect increased throughput
TV-11	Binder Mix Tank	Formaldehyde	0.002	0.009	R13-2501A Permit	Yes.	Reflect increased throughput
TV-11	Binder Mix Tank	VOC	0.01	0.045	R13-2501A Permit	Yes.	Reflect increased throughput
TV-12	Binder Mix Tank	Formaldehyde	0.002	0.009	R13-2501A Permit	Yes.	Reflect increased throughput
TV-12	Binder Mix Tank	VOC	0.01	0.045	R13-2501A Permit	Yes.	Reflect increased throughput
TV-13	Binder Mix Tank	Formaldehyde	0.002	0.009	R13-2501A Permit	Yes.	Reflect increased throughput
TV-13	Binder Mix Tank	VOC	0.01	0.045	R13-2501A Permit	Yes.	Reflect increased throughput
TV-14	Binder Mix Tank	Formaldehyde	0.002	0.009	R13-2501A Permit	Yes.	Reflect increased throughput
TV-14	Binder Mix Tank	VOC	0.01	0.045	R13-2501A Permit	Yes.	Reflect increased throughput

Emission Point ID# (Source ID #)	Source Name	Design Capacity	Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (ton/year)	Source
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	5 MM Btu/hr oven + 1.25 MM Btu/hr RTO	Carbon Dioxide	731.11	3202.2474	40 CFR 98 Subpart C - Eq.C-1
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	5 MM Btu/hr oven + 1.25 MM Btu/hr RTO	Carbon Monoxide	0.51	2.25	R13-2501A Permit
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	5 MM Btu/hr oven + 1.25 MM Btu/hr RTO	Formaldehyde	0.46	2.01	R13-2501A Permit
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	5 MM Btu/hr oven + 1.25 MM Btu/hr RTO	Methane	0.01	0.0603515	R13-2501A Permit
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	5 MM Btu/hr oven + 1.25 MM Btu/hr RTO	Methanol	0.436	1.91	R13-2501A Permit
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	5 MM Btu/hr oven + 1.25 MM Btu/hr RTO	N2O	0.00	0.00603	40 CFR 98 Subpart C - Eq.C-1
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	5 MM Btu/hr oven + 1.25 MM Btu/hr RTO	Nitrogen Oxides	3	13.1	R13-2501A Permit
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	5 MM Btu/hr oven + 1.25 MM Btu/hr RTO	Particulate Mattter-10	0.06	0.27	R13-2501A Permit
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	5 MM Btu/hr oven + 1.25 MM Btu/hr RTO	Sulfur Dioxide	0.01	0.03	R13-2501A Permit
EP-1 (Oven-1 and CD-1)	Curing Oven (Oven-1) and Regenerative Thermal Oxidizer (CD-1)	5 MM Btu/hr oven + 1.25 MM Btu/hr RTO	VOC	6.97	20.2	R13-2501A Permit
EP-2(Spray-1)	Adhesive Oil Spraying Station		Particulate Mattter-10	2.5	4.563	R13-2501A Permit
EP-2(Spray-1)	Adhesive Oil Spraying Station		VOC	5	9.125	R13-2501A Permit

Emission Point ID# (Source ID #)	Source Name	Design Capacity	Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (ton/year)	Source
EP-3 (Boiler-1)	Natural Gas Fired Boiler	3 MM Btu/hr	Carbon Dioxide	350.93	1537.081	40 CFR 98 Subpart C - Eq.C-1
EP-3 (Boiler-1)	Natural Gas Fired Boiler	3 MM Btu/hr	Carbon Monoxide	0.25	1.082	R13-2501A Permit
EP-3 (Boiler-1)	Natural Gas Fired Boiler	3 MM Btu/hr	Methane	0.007	0.029	40 CFR 98 Subpart C - Eq.C-8
EP-3 (Boiler-1)	Natural Gas Fired Boiler	3 MM Btu/hr	N2O	0.0007	0.0029	40 CFR 98 Subpart C - Eq.C-8
EP-3 (Boiler-1)	Natural Gas Fired Boiler	3 MM Btu/hr	Nitrogen Oxides	0.29	1.288	R13-2501A Permit
EP-3 (Boiler-1)	Natural Gas Fired Boiler	3 MM Btu/hr	Particulate Mattter-10	0.02	0.098	R13-2501A Permit
EP-3 (Boiler-1)	Natural Gas Fired Boiler	3 MM Btu/hr	Sulfur Dioxide	0.002	0.008	R13-2501A Permit
EP-3 (Boiler-1)	Natural Gas Fired Boiler	3 MM Btu/hr	VOC	0.02	0.071	R13-2501A Permit
EP-4 (Hood-1)	Mat Let-Off Table		Formaldehyde	0.01	0.044	R13-2501A Permit
EP-4 (Hood-1)	Mat Let-Off Table		VOC	0.05	0.22	R13-2501A Permit
EP-5 (Hood -2)	Pulling & Expanding Station		Formaldehyde	0.01	0.044	R13-2501A Permit
EP-5 (Hood -2)	Pulling & Expanding Station		VOC	0.05	0.22	R13-2501A Permit
None (Drum-1 - Drum-28)	Total Glass Fiber Forming Emissions		Formaldehyde	0.001	0.001	R13-2501A Permit
None (Drum-1 - Drum-28)	Total Glass Fiber Forming Emissions		Particulate Mattter-10	1.27	5.56	R13-2501A Permit
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	4.2 MM Btu/hr	Carbon Dioxide	491.3	2151.89	40 CFR 98 Subpart C - Eq.C-1
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	4.2 MM Btu/hr	Carbon Monoxide	0.35	1.53	R13-2501A Permit
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	4.2 MM Btu/hr	Methane	0.009	0.04	40 CFR 98 Subpart C - Eq.C-8
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	4.2 MM Btu/hr	N2O	0.0009	0.0004	40 CFR 98 Subpart C - Eq.C-8

Emission Point ID# (Source ID #)	Source Name	Design Capacity	Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (ton/year)	Source
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	4.2 MM Btu/hr	Nitrogen Oxides	0.41	1.8	R13-2501A Permit
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	4.2 MM Btu/hr	Particulate Mattter-10	0.03	0.13	R13-2501A Permit
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	4.2 MM Btu/hr	Sulfur Dioxide	0.002	0.01	R13-2501A Permit
None (GMF-1 - GMF-28)	Total Glass Furnace Melting Emissions	4.2 MM Btu/hr	VOC	0.02	0.09	R13-2501A Permit
TV-1	Forming Mold Oil Storage Tank		VOC	1	0.1	R13-2501A Permit
TV-2	Bulk Resin Storage Tank		Formaldehyde	0.002	0.009	R13-2501A Permit
TV-2	Bulk Resin Storage Tank		VOC	0.01	0.045	R13-2501A Permit
TV-3	Bulk Resin Storage Tank		Formaldehyde	0.002	0.009	R13-2501A Permit
TV-3	Bulk Resin Storage Tank		VOC	0.01	0.045	R13-2501A Permit
TV-4	Bulk Resin Storage Tank		Formaldehyde	0.002	0.009	R13-2501A Permit
TV-4	Bulk Resin Storage Tank		VOC	0.01	0.045	R13-2501A Permit
TV-5	Ethlyene Glycol Storage Tank		VOC	1	0.1	R13-2501A Permit
TV-6	Adhensive Oil Storage Tank		VOC	1	0.1	R13-2501A Permit
TV-7	Adhensive Oil Storage Tank		VOC	1	0.1	R13-2501A Permit
TV-8	Waste Oil Stoarge Tank		VOC	1	0.1	R13-2501A Permit
TV-9	Binder Mix Tank		Formaldehyde	0.002	0.009	R13-2501A Permit
TV-9	Binder Mix Tank		VOC	0.01	0.045	R13-2501A Permit
TV-10	Binder Mix Tank		Formaldehyde	0.002	0.009	R13-2501A Permit
TV-10	Binder Mix Tank		VOC	0.01	0.045	R13-2501A Permit
TV-11	Binder Mix Tank		Formaldehyde	0.002	0.009	R13-2501A Permit
TV-11	Binder Mix Tank		VOC	0.01	0.045	R13-2501A Permit
TV-12	Binder Mix Tank		Formaldehyde	0.002	0.009	R13-2501A Permit
TV-12	Binder Mix Tank		VOC	0.01	0.045	R13-2501A Permit
TV-13	Binder Mix Tank		Formaldehyde	0.002	0.009	R13-2501A Permit
TV-13	Binder Mix Tank		VOC	0.01	0.045	R13-2501A Permit
TV-14	Binder Mix Tank		Formaldehyde	0.002	0.009	R13-2501A Permit

Emission Point ID# (Source ID #)	Source Name	Design Capacity	Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (ton/year)	Source
TV-14	Binder Mix Tank		VOC	0.01	0.045	R13-2501A Permit

Emission Point	Source ID #	Source Name	Design Capacity	Design Capacity Units	Pollutant	Emission Factor[1]	Hourly Emissions (lb/hr)[2]	Annual Emissions (ton/year)[3]	or Modified Calculations	Source
None	GMF-1 - GMF-28	Total Glass Furnace Melting Emissions	4.2	MM Btu/hr	Carbon Dioxide	53.06	491.3	2151.89	Yes	40 CFR 98 Subpart C - Eq.C-1 [$CO_2 = 1 \times 10^{-3} \times$ Fuel x HHV x EF]
None	GMF-1 - GMF-28	Total Glass Furnace Melting Emissions	4.2	MM Btu/hr	Carbon Monoxide	84	0.35	1.53	Yes	AP42 Emission factors for Natural Gas Combustion
None	GMF-1 - GMF-28	Total Glass Furnace Melting Emissions	4.2	MM Btu/hr	Methane	0.001	0.0093	0.04	Yes	40 CFR 98 Subpart C - Eq.C-8 [CH_4 or N_2O = 1 x 10-3 x Fuel x HHV x EF]
None	GMF-1 - GMF-28	Total Glass Furnace Melting Emissions	4.2	MM Btu/hr	N2O	0.0001	0.0009	0.004	Yes	40 CFR 98 Subpart C - Eq.C-8 [CH_4 or N_2O = 1 x 10-3 x Fuel x HHV x EF]
None	GMF-1 - GMF-28	Total Glass Furnace Melting Emissions	4.2	MM Btu/hr	Nitrogen Oxides	100	0.41	1.8	Yes	AP42 Emission factors for Natural Gas Combustion
None	GMF-1 - GMF-28	Total Glass Furnace Melting Emissions	4.2	MM Btu/hr	Particulate Mattter-10	7.6	0.03	0.13	Yes	AP42 Emission factors for Natural Gas Combustion
None	GMF-1 - GMF-28	Total Glass Furnace Melting Emissions	4.2	MM Btu/hr	Sulfur Dioxide	0.6	0.002	0.01	Yes	AP42 Emission factors for Natural Gas Combustion
None	GMF-1 - GMF-28	Total Glass Furnace Melting Emissions	4.2	MM Btu/hr	VOC	5.5	0.02	0.09	Yes	AP42 Emission factors for Natural Gas Combustion
None	GMF-29 - GMF-50	Total Glass Furnace Melting Emissions (new units)	3.3	MM Btu/hr	Carbon Dioxide	53.06	386.02	1690.77	Yes	40 CFR 98 Subpart C - Eq.C-1 [$CO_2 = 1 \times 10^{-3} \times$ Fuel x HHV x EF]
None	GMF-29 - GMF-50	Total Glass Furnace Melting Emissions	3.3	MM Btu/hr	Carbon Monoxide	84	0.27	1.18	Yes	AP42 Emission factors for Natural Gas Combustion
None	GMF-29 - GMF-50	Total Glass Furnace Melting Emissions	3.3	MM Btu/hr	Methane	0.001	0.0073	0.03	Yes	40 CFR 98 Subpart C - Eq.C-8 [CH_4 or N_2O = 1 x 10-3 x Fuel x HHV x EF]
None	GMF-29 - GMF-50	Total Glass Furnace Melting Emissions	3.3	MM Btu/hr	N2O	0.0001	0.0007	0.003	Yes	40 CFR 98 Subpart C - Eq.C-8 [CH_4 or N_2O = 1 x 10-3 x Fuel x HHV x EF]
None	GMF-29 - GMF-50	Total Glass Furnace Melting Emissions	3.3	MM Btu/hr	Nitrogen Oxides	100	0.32	1.4	Yes	AP42 Emission factors for Natural Gas Combustion
None	GMF-29 - GMF-50	Total Glass Furnace Melting Emissions	3.3	MM Btu/hr	Particulate Mattter-10	7.6	0.02	0.09	Yes	Ratio of old Glass furnace Melting emissions
None	GMF-29 - GMF-50	Total Glass Furnace Melting Emissions	3.3	MM Btu/hr	Sulfur Dioxide	0.6	0.002	0.01	Yes	Ratio of old Glass furnace Melting emissions
None	GMF-29 - GMF-50	Total Glass Furnace Melting Emissions	3.3	MM Btu/hr	VOC	5.5	0.02	0.09	Yes	AP42 Emission factors for Natural Gas Combustion
EP-6	Oven-2	Curing Oven	5	MM Btu/hr	Carbon Dioxide	53.06	584.89	2561.82	Yes	40 CFR 98 Subpart C - Eq.C-1 [$CO_2 = 1 \times 10^{-3} \times$ Fuel x HHV x EF]
EP-6	Oven-2	Curing Oven	5	MM Btu/hr	Carbon Monoxide	0.1	0.1	0.44	Yes	AP-42 Emission Factors
EP-6	Oven-2	Curing Oven	5	MM Btu/hr	Methane	0.001	0.011	0.05	Yes	40 CFR 98 Subpart C - Eq.C-8 [CH_4 or N_2O = 1 x 10-3 x Fuel x HHV x EF]

Emission Point	Source ID #	Source Name	Design Capacity	Design Capacity Units	Pollutant	Emission Factor[1]	Hourly Emissions (lb/hr)[2]	Annual Emissions (ton/year)[3]	or Modified Calculations	Source
EP-6	Oven-2	Curing Oven	5	MM Btu/hr	N2O	0.0001	0.0011	0.005	Yes	40 CFR 98 Subpart C - Eq.C-8 [CH_4 or N_2O = 1 x 10-3 x Fuel x HHV x EF]
EP-6	Oven-2	Curing Oven	5	MM Btu/hr	Nitrogen Oxides	100	3	13.14	Yes	Based on current RTO emisisons
EP-6	Oven-2	Curing Oven	5	MM Btu/hr	Particulate Mattter-10	7.6	0.04	0.18	Yes	AP42 Emission factors for Natural Gas Combustion
EP-6	Oven-2	Curing Oven	5	MM Btu/hr	Sulfur Dioxide	0.6	0.003	0.01	Yes	AP42 Emission factors for Natural Gas Combustion
EP-6	Oven-2	Curing Oven	5	MM Btu/hr	VOC	5.5	0	0	Yes	Included in Process source emissions
EP-6	CD-3	Regenerative Thermal Oxidizer	2.8	MM Btu/hr	Carbon Dioxide	53.06	327.54	1434.63	Yes	40 CFR 98 Subpart C - Eq.C-1 [$CO_2 = 1 \times 10^{-3}$ x Fuel x HHV x EF]
EP-6	CD-3	Regenerative Thermal Oxidizer	2.8	MM Btu/hr	Carbon Monoxide	84	0.23	1.01	Yes	AP-42 Emission Factors
EP-6	CD-3	Regenerative Thermal Oxidizer	2.8	MM Btu/hr	Methane	0.001	0.0062	0.03	Yes	40 CFR 98 Subpart C - Eq.C-8 [CH_4 or N_2O = 1 x 10-3 x Fuel x HHV x EF]
EP-6	CD-3	Regenerative Thermal Oxidizer	2.8	MM Btu/hr	N2O	0.0001	0.0006	0.003	Yes	40 CFR 98 Subpart C - Eq.C-8 [CH_4 or N_2O = 1 x 10-3 x Fuel x HHV x EF]
EP-6	CD-3	Regenerative Thermal Oxidizer	2.8	MM Btu/hr	Nitrogen Oxides	100	0	0	Yes	Included in Oven-2 emssions
EP-6	CD-3	Regenerative Thermal Oxidizer	2.8	MM Btu/hr	Particulate Mattter-10	7.6	0.02	0.09	Yes	AP42 Emission factors for Natural Gas Combustion
EP-6	CD-3	Regenerative Thermal Oxidizer	2.8	MM Btu/hr	Sulfur Dioxide	0.6	0.002	0.01	Yes	AP42 Emission factors for Natural Gas Combustion
EP-6	CD-3	Regenerative Thermal Oxidizer	2.8	MM Btu/hr	VOC	5.5	0	0	Yes	Included in Process source emissions

Emission Point	Source ID #	Source Name	Pollutant	Emission Factor[1]	Hourly Emissions (lb/hr)	Annual Emissions (ton/year)	Source
EP-6	Oven-2	Curing Oven	Formaldehyde	NA	0.46	2.01	Based on Curing Oven 1 Stack Test Results
EP-6	Oven-2	Curing Oven	Methanol	NA	0.44	1.93	Based on Curing Oven 1 Stack Test Results
EP-6	Oven-2	Curing Oven	VOC	NA	6.97	20.2	Based on existing R13-2501A permit
EP-7	Spray-2	Adhesive Oil Spraying Station	Particulate Mattter-10	NA	2.5	4.56	Engineering Estimate based on Spray-1
EP-7	Spray-2	Adhesive Oil Spraying Station	VOC	NA	5	9.13	Engineering Estimate based on Spray-1
EP-8	Hood-3	Mat Let-Off Table	Formaldehyde	NA	0.01	0.044	Based on Hood-1: Hourly emission estimates of formaldehyde are based upon 1993 ambient and emission point air sampling conducted by ERM using NIOSH Method #2532, and then increased by an order of magnitude. Annual emission estimated are based upon hourly emissions at 8,760 hr/yr. To account for a 50% increase in production. The hourly value was doubled.
EP-8	Hood-3	Mat Let-Off Table	VOC	NA	0.05	0.22	Based on Hood-1: Hourly emission estimates are based upon an engineering estimate of five times the estimated formaldhyde emission rate.
EP-9	Hood -4	Pulling & Expanding Station	Formaldehyde	NA	0.01	0.04	Based on Mat-Let Off Table
EP-9	Hood -4	Pulling & Expanding Station	VOC	NA	0.05	0.22	Based on Mat-Let Off Table
None	Drum-29 - Drum-50	Total Glass Fiber Forming Emissions	Formaldehyde	NA	0.001	0.004	Based on 10% of Mat-Let Off Table
None	Drum-29 - Drum-50	Total Glass Fiber Forming Emissions	Particulate Mattter-10	1	1.446	5.56	Based on AP-42 Chapter 11.13 Glass Fiber Manufacturing Table 11.13-2 [Forming -textile]
None	Drum-29 - Drum-50	Total Glass Fiber Forming Emissions	VOC	NA	0.005	0.022	Based on 10% of Mat-Let Off Table
TV-1	T-1	Forming Mold Oil Storage Tank	VOC	NA	2	0.2	Emissions doubled to account for increased through put.
TV-2	T-2	Bulk Resin Storage Tank	Formaldehyde	NA	0.004	0.02	Emissions doubled to account for increased through put. Original hourly emission - assume same estimates as Binder Mix Tank T-9, even though the 1993 embient and emission point air sampling conducted by ERM using NIOSH Method #2532 did not detect any formaldehyde at this vent point.
TV-2	T-2	Bulk Resin Storage Tank	VOC	NA	0.02	0.09	Previous emission doubled to account for increased production.
TV-3	T-3	Bulk Resin Storage Tank	Formaldehyde	NA	0.004	0.02	Same as T-2

Emission Point	Source ID #	Source Name	Pollutant	Emission Factor[1]	Hourly Emissions (lb/hr)	Annual Emissions (ton/year)	Source
TV-3	T-3	Bulk Resin Storage Tank	VOC	NA	0.02	0.09	Same as T-2
TV-4	T-4	Bulk Resin Storage Tank	Formaldehyde	NA	0.004	0.02	Same as T-2
TV-4	T-4	Bulk Resin Storage Tank	VOC	NA	0.02	0.09	Same as T-2
TV-5	T-5	Ethlyene Glycol Storage Tank	VOC	NA	1	0.1	Worst-case engineering estimate of stoarge tank emissions based upon glycol MSDS statement of negligible volatility
TV-6	T-6	Adhensive Oil Storage Tank	VOC	NA	1	0.1	Worst-case engineering estimate of stoarge tank emissions based upon adhesive oil MSDS statement of negligible volatility
TV-7	T-7	Adhensive Oil Storage Tank	VOC	NA	1	0.1	Worst-case engineering estimate of storage tank emissions based upon adhesive oil MSDS statement of negligible volatility
TV-8	T-8	Waste Oil Stoarge Tank	VOC	NA	1	0.1	Worst-case engineering estimate of storage tank emissions based upon waste oil MSDS statement of negligible volatility
TV-9	T-9	Binder Mix Tank	Formaldehyde	NA	0.004	0.02	Hourly emission estimates of formaldehyde are based upon 1993 ambient and emission point air sampling conducted by ERM using NIOSH Method #2532, and then increased by an order of magnitude. Annual emission estimated are based upon hourly emissions at 8,760 hr/yr. To account for a 50% increase in production. The hourly value was doubled.
TV-9	T-9	Binder Mix Tank	VOC	NA	0.02	0.09	Hourly emissions of total VOC are based upon an engineering estimate of five times the astimated formaldehyde emission rate. Annual emission estimated are based upon hourly emissions at 8,760 hr/hr.
TV-10	T-10	Binder Mix Tank	Formaldehyde	NA	0.004	0.02	Same as T-9 Binder Mix Tank
TV-10	T-10	Binder Mix Tank	VOC	NA	0.02	0.09	Same as T-9 Binder Mix Tank
TV-11	T-11	Binder Mix Tank	Formaldehyde	NA	0.004	0.02	Same as T-9 Binder Mix Tank
TV-11	T-11	Binder Mix Tank	VOC	NA	0.02	0.09	Same as T-9 Binder Mix Tank
TV-12	T-12	Binder Mix Tank	Formaldehyde	NA	0.004	0.02	Same as T-9 Binder Mix Tank
TV-12	T-12	Binder Mix Tank	VOC	NA	0.02	0.09	Same as T-9 Binder Mix Tank
TV-13	T-13	Binder Mix Tank	Formaldehyde	NA	0.004	0.02	Same as T-9 Binder Mix Tank

Emission Point	Source ID #	Source Name	Pollutant	Emission Factor[1]	Hourly Emissions (lb/hr)	Annual Emissions (ton/year)	Source
TV-13	T-13	Binder Mix Tank	VOC	NA	0.02	0.09	Same as T-9 Binder Mix Tank
TV-14	T-14	Binder Mix Tank	Formaldehyde	NA	0.004	0.02	Same as T-9 Binder Mix Tank
TV-14	T-14	Binder Mix Tank	VOC	NA	0.02	0.09	Same as T-9 Binder Mix Tank
1-lb/ton of material processed							

	Current Permit		Revised Current PTE[1]		After Expansion		Change between permitted emission and expansion		Change between Current PTE (with EF changes) and expansion project	
Pollutant	**lb/hr**	**TPY**	**lb/hr**	**TPY**	**lb/hr**	**TPY**	**lb/hr**	**TPY**	**lb/hr**	**TPY**
Carbon Dioxide	1573.33855	6891.219	1573.339	6891.219	3061.65	13410.03	1488.31	6518.81	1488.31	6518.81
Carbon Monoxide	1.6	7.012	1.11	4.862	1.71	7.5	0.11	0.49	0.60	2.64
Formaldehyde	0.499	2.18	0.499	2.18	0.994	4.356	0.50	2.18	0.50	2.18
Methane	0.02939276	0.12932	0.029393	0.12932	0.0567	0.25	0.03	0.12	0.03	0.12
Methanol	0.436	1.91	0.436	1.91	0.88	3.86	0.44	1.95	0.44	1.95
N2O	0.00293881	0.01293	0.002939	0.00933	0.0057	0.0260	0.003	0.013	0.00	0.02
Nitrogen Oxides	21.49	94.108	3.7	16.188	7.01	30.71	-14.48	-63.40	3.31	14.52
Particulate Mattter-10	9.45	35.021	3.88	10.621	5.582	16.53	-3.87	-18.49	1.70	5.91
Sulfur Dioxide	2.812	12.298	0.014	0.048	0.016	0.07	-2.80	-12.23	0.00	0.02
VOC	17.46	31.971	17.2	30.831	30.39	61.264	12.93	29.29	13.19	30.43

1 - Emissions from the Glass Melt Furnaces were revised to reflect the true operation of the units

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification		
User Identification:	T-1	
City:	Reedsville	
State:	West Virginia	
Company:	Superior Fibers	
Type of Tank:	Horizontal Tank	
Description:	Tank 1	
Tank Dimensions		
Shell Length (ft):		18.00
Diameter (ft):		8.00
Volume (gallons):		6,767.00
Turnovers:		4.00
Net Throughput(gal/yr):		27,068.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	
Paint Characteristics		
Shell Color/Shade:	Red/Primer	
Shell Condition	Good	
Breather Vent Settings		
Vacuum Settings (psig):		-0.03
Pressure Settings (psig)		0.03

Meteorological Data used in Emissions Calculations: Pittsburgh, Pennsylvania (Avg Atmospheric Pressure = 14.11 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

T-1 - Horizontal Tank
Reedsville, West Virginia

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Residual oil no. 6	All	61.20	50.26	72.14	54.65	0.0000	0.0000	0.0001	190.0000			387.00	Option 1: VP60 = .00004 VP70 = .00006

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

T-1 - Horizontal Tank
Reedsville, West Virginia

Annual Emission Calcaulations	
Standing Losses (lb):	0.0242
Vapor Space Volume (cu ft):	576.2922
Vapor Density (lb/cu ft):	0.0000
Vapor Space Expansion Factor:	0.0798
Vented Vapor Saturation Factor:	1.0000
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	576.2922
Tank Diameter (ft):	8.0000
Effective Diameter (ft):	13.5440
Vapor Space Outage (ft):	4.0000
Tank Shell Length (ft):	18.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0000
Vapor Molecular Weight (lb/lb-mole):	190.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Daily Avg. Liquid Surface Temp. (deg. R):	520.8667
Daily Average Ambient Temp. (deg. F):	50.3083
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	514.3183
Tank Paint Solar Absorptance (Shell):	0.8900
Daily Total Solar Insulation Factor (Btu/sqft day):	1,202.9556
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0798
Daily Vapor Temperature Range (deg. R):	43.7657
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0000
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0001
Daily Avg. Liquid Surface Temp. (deg R):	520.8667
Daily Min. Liquid Surface Temp. (deg R):	509.9253
Daily Max. Liquid Surface Temp. (deg R):	531.8081
Daily Ambient Temp. Range (deg. R):	19.1500
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	1.0000
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.0000
Vapor Space Outage (ft):	4.0000

Working Losses (lb):	0.0052
Vapor Molecular Weight (lb/lb-mole):	190.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Annual Net Throughput (gal/yr.):	27,068.0000
Annual Turnovers:	4.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	8.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	0.0294

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

T-1 - Horizontal Tank
Reedsville, West Virginia

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Residual oil no. 6	0.01	0.02	0.03

ATTACHMENT O – MONITORING / RECORDKEEPING / REPORTING / TESTING PLANS

ATTACHMENT O – MONITORING / RECORDKEEPING / REPORTING / TESTING PLANS

MONITORING:

1. Curing Ovens (Oven-1 and Oven-2) will only cure products with binder maximum 0.51% free formaldehyde content by weight and maximum 1.0% methanol content by weight.
2. Monthly product quantity processed through the Curing Ovens (Oven-1 and Oven-2) shall not exceed 1800 tons/mo, and annual product quantity processed through the Curing Ovens shall not exceed 19,500 tons/yr.
3. The temperature of the Regenerative Thermal Oxidizer (CD-2) will be monitored.
4. Monthly visual emission observations in accordance with 40 CFR 60 Appendix A, Method 9 of the Regenerative Thermal Oxidizer (CD-2).

RECORDKEEPING:

1. Monthly visual emission observations of Regenerative Thermal Oxidizer (CD-2).
2. Monthly resin use.

REPORTING:
None recommended.

TESTING:

1. Conduct stack test of Regenerative Thermal Oxidizer (CD-3) after start-up to determine the unit meets the emission limits for VOCs, formaldehyde, and methanol (EPA Method 318 (Extractive FTIR Method for the Measurement of Emissions from the Mineral Wool and Wool Fiberglass Industries)).

ATTACHMENT P – PUBLIC NOTICE

ATTACHMENT P – PUBLIC NOTICE

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Superior Fibers LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Modification Permit for a Fiber glass manufacturing line located on Rt. 92 South, in Reedsville, in Preston County, West Virginia. The latitude and longitude coordinates are: 39.5106416 and -79.7983916

The applicant will be adding a second curing oven controlled by a second thermal oxidizer along with other process equipment to increase production at the facility. The applicant estimates the increased potential to discharge the following Regulated Air Pollutants will be: Carbon Monoxide :0.49 Tons/Year, Volatile Organic Compounds: 29.51 Tons/year Formaldehyde: 2.18 Tons/Year, Methanol: 1.95 Tons/Year. Due to emission calculation changes the facility the following decreases Nitrogen Oxides:-63.40 Tons/Year, Sulfur Dioxide:-12.23 Tons/Year and Particulate Matter (PM Total, PM10 and PM 2.5): -18.49.

Startup of operation is planned to begin on or about the 1 day of August, 2016. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.
Dated this the 30 day of October, 2015.

By: Superior Fiber LLC
Rod Wilkins
Chief Technology Officer
Rt 92 South)
Reedsville, WV 26547

ATTACHMENT Q – BUSINESS CONFIDENTIAL CLAIMS

Cover Document for Confidential Information

Company Name	Superior Fibers LLC	**Responsible Official**		
Company Address	Rt. 92 South	**Confidential Information Designee in State of WV**	Name	Rod Wilkins
	Reedsville, WV 26547		Title	Chief Technology Officer
			Address	
Person/Title Submitting Confidential Information	Rod Wilkins			
	Chief Technology Officer		Phone	
			Fax	

Reason for Submittal of Confidential Information: Permit Application for facility expansion.

Identification of Confidential Information	**Rationale for Confidential Claim 45CSR31-4.1.a-e**	**Confidential Treatment Time Period**
Attachment H – Selected Raw Materials and their Material Safety Data Sheets Attachment L: Emission Unit Data Sheets – selected production rates. Attachment N: - Emission Calculations selected equipment design throughput	Business Confidential / Trade Secret Data for all Claimed Confidential / Maintain Advantage in Business Competitive Marketplace.	Permanently for all Claimed Confidential.

The Claim of Confidentiality has not expired, been waived or withdrawn (45-31-4.1.a)

Superior Fibers LLC takes reasonable measures to protect the confidentiality of this information, which is not nor has been readily available or attainable to anyone without Superior's knowledge, approval or authorization. (45-31-4.1.b, 4.1.c)

No statute specifically requires disclosure of this information. (45-31-4.1.d)

Additionally, disclosure of this information will cause substantial harm to Superior's competitive business position for this process (45-31-4.1.e)

The non-confidential white paper submittal depicts redaction of CBI and the words "Redacted Copy – Claim Confidentiality" marked on each page containing CBI.
No emissions data is claimed confidential.

Responsible Official Signature:	
Responsible Official Title:	Chief Technology Officer
Date Signed:	10-1-15

NOTE: Must be signed and dated in BLUE INK.