

Commonwealth of Kentucky
Division for Air Quality
STATEMENT OF BASIS / SUMMARY

Title V, Operating
PERMIT ID: V-23-029
Sun Pools Inc.
130 Holiday Ln, Albany, KY 42602
September 11, 2023
William Parsons, Reviewer
Source ID: 21-053-00022
Agency Interest #: 84569
Activity ID: APE20230001

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SECTION 1 – SOURCE DESCRIPTION

SIC Code and description: 3089 Plastics Products, NEC

Single Source Det. Yes No If Yes, Affiliated Source AI:

Source-wide Limit Yes No If Yes, See Section 4, Table A

28 Source Category Yes No If Yes, Category:

County: Clinton

Nonattainment Area N/A PM₁₀ PM_{2.5} CO NO_x SO₂ Ozone Lead

If yes, list Classification:

PTE* greater than 100 tpy for any criteria air pollutant Yes No

If yes, for what pollutant(s)?

PM₁₀ PM_{2.5} CO NO_x SO₂ VOC

PTE* greater than 250 tpy for any criteria air pollutant Yes No

If yes, for what pollutant(s)?

PM₁₀ PM_{2.5} CO NO_x SO₂ VOC

PTE* greater than 10 tpy for any single hazardous air pollutant (HAP) Yes No

If yes, list which pollutant(s): Styrene

PTE* greater than 25 tpy for combined HAP Yes No

*PTE does not include self-imposed emission limitations.

Description of Facility:

The facility has an open molding gel coat and lamination process for the production of fiberglass products. The predominate product to be manufactured are fiberglass pools and boats.

SECTION 2 – CURRENT APPLICATION

Permit Number: V-23-029

Activity: APE20230001

Application Received: 7/13/2023

Application Complete: 9/5/2023

Permit Action: Initial Renewal Significant Rev Minor Rev Administrative

Construction/Modification Requested? Yes No NSR Applicable? Yes No

Previous 502(b)(10) or Off-Permit Changes incorporated with this permit action Yes No

Description of Action:

APE20230001 Renewal:

The Division received an application 7/13/2023 for the renewal of the facility’s Title V permit. No changes to the permit were requested.

V-23-029 Emission Summary		
Pollutant	2022 Actual (tpy)	PTE V-23-029 (tpy)
CO	0.19	3.50
NOx	0.23	6.07
PT	0.033	0.40
PM ₁₀	0.033	0.40
PM _{2.5}	0.022	0.11
SO ₂	0.0014	0.0084
VOC	42.21	133.9*
Lead	0.0000012	0.000021
Greenhouse Gases (GHGs)		
Carbon Dioxide	275.5	5877
Methane	0.0053	0.095
Nitrous Oxide	0.0051	0.0095
CO ₂ Equivalent (CO ₂ e)	277.2	5882
Hazardous Air Pollutants (HAPs)		
Methyl Methacrylate	2.33	8.96
Styrene	31.68	121.0
Combined HAPs:	34.02	129.9

*The facility has a source-wide limit of 90 tpy for VOC

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Unit #1 Open Molding Operations - Fiberglass Product Manufacturing				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
VOC	Source wide 90 tpy	To preclude 401 KAR 50:012	Material Balance & MSDS	Recordkeeping and Reporting
HAP	Organic HAP emissions limits	40 CFR 63, Subpart WWWW, 40 CFR 63.5810(c)	Table 1 of 40 CFR 63, Subpart WWWW	Weighted average emission limit option
PM	2.34 lbs/hr	401 KAR 59:010, Section 3(2)	Material Balance & MSDS with 98% Transfer Efficiency	Dry Filters, 95% C.E., Manufacturer's guarantee
Opacity	20% opacity	401 KAR 59:010, Section 3(1)	N/A	Weekly Stack Visual Observation

Initial Construction Date: June 2007

Process Description:

The process area consists of ten spray areas. Each spray area has a dry filter for control of particulate emissions and an exhaust stack through the roof. Spray areas are denoted as EF-1 through EF-10. Eight of the ten areas are identical, each having a 10,000 ACFM exhaust fan and a stack through the roof. The remaining two spray areas appear identical to the first eight but exhaust 12,000 ACFM. Each spray area includes two Magnum Venus Fluid Impingement Technology (FIT) atomized gel coat guns, two flow coat chopper guns, and associated equipment used for applying gel coat, resin and chopped fiberglass on various molds. The open molding operation types for the application techniques are atomized gel coat application and mechanical non-atomized resin application.

The same application equipment and spray areas used to manufacture fiberglass pools will be used to manufacture fiberglass boats as well.

Gel coat and resin spray-up are commonly used in open molding processes in the fiberglass-reinforced plastics/composites (FRP/C) and boat building industries. Styrene, a compound listed as a hazardous air pollutant, is emitted during the application and post-application (roll-out and curing) stages. During the gel coat and resin spray-up operations, polyester resins are sprayed onto a mold. Gel coat and resin materials contain styrene, which cross-links the resin molecules under the effects of a promoter and an initiator to form a solid polymer. An initiator is mixed with the resin material to initiate the cross-linking process. The initiator is mixed with resin material within the spray gun or application equipment (internal mixing) or just outside the spray tip (external mixing). Wet resin material cures on the mold. For resin lamination, a roll-out step follows the application step to remove air bubbles entrained in the laminate. (EPA/600/SR-97/018)

Applicable Regulation:

401 KAR 59:010, New process operations. This regulation is applicable to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates, commenced on or after July 2, 1975.

Emission Unit #1 Open Molding Operations - Fiberglass Product Manufacturing

401 KAR 63:002, Section 2(4)(bbbb) 40 C.F.R. 63.5780 to 63.5935, Tables 1 to 15, and Appendix A (Subpart WWWW), National Emissions Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production, applies to the reinforced plastic composites production facility that is located at a major source of HAP emissions.

Precluded Regulations:

401 KAR 50:012, General application, is not applicable because the source is taking VOC emission limitation to be no more than 90 tons for any consecutive 12-month period.

401 KAR 51:017, Prevention of significant deterioration of air quality, is not applicable because the source is taking VOC emission limitation to be no more than 90 tons for any consecutive 12-month period.

Comments:

Glass fiber processing plants is listed as one of 28 source categories. According to a clarification document in New Source Review Policy and Guidance Document Index. Facilities that use glass fibers to manufacture other products, such as fiberglass-reinforced composites, were not intended to be included in the "glass fiber processing" category. "Glass fiber processing" was intended to include only those facilities engaged in making glass fiber. While the plants that produce glass fiber and filament sometimes integrate the manufacture of insulating wools and 100 percent glass fiber fabrics, the manufacture of fiberglass-reinforced composites is a substantially different process, which is more similar to a surface coating process. The typical pollutant from the production of glass fiber would be particulate; whereas, the pollutant from manufacturing fiberglass-reinforced storage tanks, for example, would be primarily volatile organic compounds. Therefore, the source is not one of the 28 source categories.

PM emission factor was estimated based on the highest solid content in gel coat. Overspray is estimated to be 2 percent based on the test result from other similar manufacturing facility. The dry particulate filters are assumed to control 95 percent of PM emissions.

No control device is utilized for VOC and HAP emissions.

Styrene emissions were calculated using HAP emission factors for manual resin application, non-atomized mechanical resin application with nonvapor-suppressed resin, and atomized gel coat spray application with nonvapor-suppressed gel coat from Table 1 of 40 CFR 63, Subpart WWWW.

For manual resin application with styrene content greater than 33% organic HAP content, Resin: $EF = ((0.286 \times \%HAP) - 0.0529) \times 2000$

For nonatomized mechanical resin application with styrene content greater than 33% organic HAP content, Resin: $EF = ((0.157 \times \%HAP) - 0.0165) \times 2000$

For atomized spray gelcoat application with styrene content greater than 33% organic HAP content, Resin: $EF = ((1.03646 \times \%HAP) - 0.195) \times 2000$

Methyl Methacrylate (MMA) emissions were calculated using "Unified Emission Factors for Open Molding of Composites" (UEF) developed by American Composites Manufacturers Association (ACMA).

MMA: $EF \text{ in pounds per ton of gelcoat processed} = 0.75 \times \%MMA \times 2000$

VOC emissions are sum of the styrene and MMA emissions.

Emission Unit #1 Open Molding Operations - Fiberglass Product Manufacturing

The source is taking source wide VOC emission limit to be no more than ninety (90) tons per year, therefore, the source wide HAP emissions will be less than 100 tpy. The source shall comply with the organic HAP emission limits for the facility that emits less than 100 tpy of HAP specified in 40 CFR 63, Subpart WWWW. The source utilizes a weighted average emission limit option to demonstrate compliance with the organic HAP emissions limits per 40 CFR 63.5810(c).

401 KAR 63:020, Potentially Hazardous Matter or Toxic Substances, does not apply to emissions elsewhere subject to the provisions of the administrative regulations of the Division. Emissions subjected to or exempted by 40 CFR Part 63, Subpart WWWW and Subpart VVVV are not subject to the requirements of 401 KAR 63:020.

Emission Unit #2 Open Molding Operations - Fiberglass Boat Manufacturing

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
VOC	Source wide 90 tpy	To preclude 401 KAR 50:012	Material Balance & MSDS	Recordkeeping and Reporting
HAP	Organic HAP emissions limits	40 CFR 63, Subpart VVVV, 40 CFR 63.5698	Table 3 of 40 CFR 63, Subpart VVVV	MACT model point value averaging (emissions averaging) option
PM	2.34 lbs/hr	401 KAR 59:010, Section 3(2)	Material Balance & MSDS with 98% Transfer Efficiency	Dry Filters, 95% C.E., Manufacturer's guarantee
Opacity	20% opacity	401 KAR 59:010, Section 3(1)	N/A	Weekly Stack Visual Observation

Initial Construction Date: June 2007

Process Description:

The process area consists of ten spray areas. Each spray area has a dry filter for control of particulate emissions and an exhaust stack through the roof. Each spray area includes two Magnum Venus Fluid Impingement Technology (FIT) atomized gel coat guns, two flow coat chopper guns, and associated equipment used for applying gel coat, resin and chopped fiberglass on various molds. The open molding operation types for the application techniques are atomized gel coat application and mechanical non-atomized resin application.

The same application equipment and spray areas used to manufacture fiberglass pools will be used to manufacture fiberglass boats as well.

Applicable Regulation:

401 KAR 59:010, New process operations. This regulation is applicable to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates, commenced on or after July 2, 1975.

Emission Unit #2 Open Molding Operations - Fiberglass Boat Manufacturing

401 KAR 63:002, Section 2(4)(aaaa) 40 C.F.R. 63.5680 to 63.5779, Tables 1 to 8 (Subpart VVVV), National Emission Standards for Hazardous Air Pollutants for Boat Manufacturing, applies to the boat manufacturing facility that builds fiberglass boats or aluminum recreational boats.

Precluded Regulations:

401 KAR 50:012, General application, is not applicable because the source is taking VOC emission limitation to be no more than 90 tons for any consecutive 12-month period.

401 KAR 51:017, Prevention of significant deterioration of air quality, is not applicable because the source is taking VOC emission limitation to be no more than 90 tons for any consecutive 12-month period.

Comments:

Overspray is estimated to be 2 percent based on the test result from other similar manufacturing facility. The dry particulate filters are assumed to control 95 percent of PM emissions.

No control device is utilized for VOC and HAP emissions.

Styrene emissions were calculated using HAP emission factors from Table 3 of 40 CFR 63, Subpart VVVV.

MMA emissions were calculated using "Unified Emission Factors for Open Molding of Composites" (UEF) developed by American Composites Manufacturers Association (ACMA).

VOC emissions are sum of the styrene and MMA emissions.

401 KAR 63:020, Potentially Hazardous Matter or Toxic Substances, does not apply to emissions elsewhere subject to the provisions of the administrative regulations of the Division. Emissions subjected to or exempted by 40 CFR Part 63, Subpart WWWW and Subpart VVVV are not subject to the requirements of 401 KAR 63:020.

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

Emission and Operating Limit	Regulation	Emission Unit
90 tpy of VOC emissions	To preclude the applicability of 401 KAR 50:012 and 401 KAR 51:017	Source-wide

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 59:010 , <i>New process operations</i>	EP 01 & 02
401 KAR 63:002 Section 2(4)(bbbb) 40 C.F.R. 63.5780 to 63.5935, Tables 1 to 15, and Appendix A (Subpart WWWW) , <i>National Emissions Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production</i>	EP 01
401 KAR 63:002 Section 2(4)(aaaa) 40 C.F.R. 63.5680 to 63.5779, Tables 1 to 8 (Subpart VVVV) , <i>National Emission Standards for Hazardous Air Pollutants for Boat Manufacturing</i>	EP 02

Table C - Summary of Precluded Regulations:

Precluded Regulations	Emission Unit
401 KAR 50:012 , <i>General application</i>	Source-wide
401 KAR 51:017 , <i>Prevention of significant deterioration of air quality</i>	Source-wide

Table D - Summary of Non Applicable Regulations:

Non Applicable Regulations	Emission Unit
N/A	

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS (CONTINUED)

Air Toxic Analysis

N/A

Single Source Determination

N/A

SECTION 5 – PERMITTING HISTORY

Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
V-07-013	Initial	APE20070001	4/6/2007	7/23/2007	Initial Construction Permit	N/A
V-12-030	Renewal	APE20120001	5/7/2012	10/29/2012	Added 40 CFR 63, Subpart VVVV	N/A
V-18-023	Renewal	APE20170001	7/18/2017	12/19/2018	Permit Renewal and Ownership Change	N/A
V-18-023	Renewal	APE20170001 & APE20180001	7/18/2017	12/19/2018	Permit Renewal and Ownership Change	N/A

SECTION 6 – PERMIT APPLICATION HISTORY
N/A

APPENDIX A – ABBREVIATIONS AND ACRONYMS

AAQS	– Ambient Air Quality Standards
BACT	– Best Available Control Technology
Btu	– British thermal unit
CAM	– Compliance Assurance Monitoring
CO	– Carbon Monoxide
Division	– Kentucky Division for Air Quality
ESP	– Electrostatic Precipitator
GHG	– Greenhouse Gas
HAP	– Hazardous Air Pollutant
HF	– Hydrogen Fluoride (Gaseous)
MMA	– Methyl Methacrylate
MMBtu/hr	– million BTU per hour
mmHg	– Millimeter of mercury column height
MSDS	– Material Safety Data Sheets
NAAQS	– National Ambient Air Quality Standards
NESHAP	– National Emissions Standards for Hazardous Air Pollutants
NO _x	– Nitrogen Oxides
PM	– Particulate Matter
PM ₁₀	– Particulate Matter equal to or smaller than 10 micrometers
PM _{2.5}	– Particulate Matter equal to or smaller than 2.5 micrometers
PSD	– Prevention of Significant Deterioration
PTE	– Potential to Emit
SO ₂	– Sulfur Dioxide
TF	– Total Fluoride (Particulate & Gaseous)
VOC	– Volatile Organic Compounds