

TECHNICAL SUPPORT DOCUMENT (TSD)
APRIL 2014

I. General Comments:

A. Company Information

1. Southwest Fiberglass, LLC
2. 4798 S. Julian Avenue, Tucson, AZ 85714

B. Background

The initial operating permit for this facility was issued to Mesa Fiberglass in November 1995. The operating permit was subsequently transferred to Southwest Fiberglass, Inc., in March 2001.

This April 2014 operating permit is the fourth five-year air quality permit issued to Southwest Fiberglass, LLC. (the Permittee) for their Reinforced Plastic Composites Production (RPCP) located at 4798 S. Julian Avenue, Tucson, Arizona.

C. Attainment Classification

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

II. Source Description

A. Process Description

Southwest Fiberglass LLC manufactures custom fiberglass storage tanks and ducts using reinforced plastic composites. The company uses three methods for applying the resins and gel-coats including hand lay-up (manual), controlled spraying (mechanical), and filament winding. The primary air pollutant (originating in the resins and gel coats) is styrene, designated as both a volatile organic compound (VOC) pursuant to Pima County Code (PCC) 17.04.340 and a hazardous air pollutant (HAP) pursuant to PCC 17.16.660.

All of the resin spray operations are conducted with chopper guns using fluid impingement technology (FIT) nozzles. The FIT nozzles mix the resin and catalyst in the spray gun so there are no emissions from mixing. There are no PM emissions from this operation since the overspray consists of large sticky droplets that quickly fall out of the air stream. The VOC and HAP emissions result from the evaporation of the unreacted styrene monomer in the resin as the mixing progresses.

None of the consumed resins or gel coats utilize a vapor suppressant. The primary clean-up solvent is Acetone. Southwest Fiberglass, Inc. is an existing major source of a single hazardous air pollutant (styrene), a synthetic minor source of VOC, and a true minor source of all other criteria pollutants.

Potential emissions from the facility are controlled by limiting the maximum usage of resins and gel coats per 12-month period per operation type (manual, mechanical or filament application).

Affected Emission Source Classification: Class I stationary source subject to the provisions of 40 CFR 63 Subpart WWWW National Emission Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production, the Pima County State Implementation Plan (Pima County SIP) and Title 17 of the Pima County Code, (PCC).

The Permittee has requested to maintain a limitation to keep VOC and HAP emissions below 100 tons per year, to avoid more stringent reductions required by the MACT standard for sources with greater than 100 tpy of emissions. Also, without this limitation, the source would constitute a "major emitting source" for VOCs within the meaning of 40 CFR 51.166, and would require the facility to go through a Prevention of Significant Deterioration (PSD) review.

B. Air Pollution Control Equipment

All resin spraying operations are conducted with spray guns equipped with fluid impingement technology (FIT) nozzles. Independent tests have demonstrated a reduction of styrene emissions from spraying operations using the FIT spray guns (Attachment 1, FIT test results). Southwest Fiberglass, Inc is not taking credit for using FIT technology and so PTE calculations do not account for this reduction. PDEQ therefore does not consider the application of FIT nozzles to be add-on control devices for this facility.

The use of FIT nozzles effectively change the application method from atomized to nonatomized (see definition of nonatomized mechanical application in 40 CFR 63 Subpart WWWW).

These FIT nozzles are required to be used on all spray equipment at all times.

III. Regulatory History

A. Testing & Inspections

Southwest Fiberglass (SWF) has had the following regulatory actions in the past:

- Notice of violation dated 01/27/95 for the operation of an air pollution source without a permit.
- Notice of violation dated 06/29/98 for failing to comply with an established material permit condition, failing to submit an annual compliance certification,
- Compliance Status Letter dated 06/27/01 for insufficient recordkeeping, failure to use polyester resin product compatible with the allowable weight styrene limitation.
- August 15, 2002, routine compliance inspection revealed source to meet permit requirements.
- Notice of Violation dated 09/07/04 for failing to conduct monthly on-site inspections in accordance with the permit conditions.
- Notice of violation dated 10/30/2008 for the absence of demonstrating compliance with the organic HAP emission limits in the applicable NESHAP Subpart WWWW standards.

Inspections have occurred regularly and Southwest Fiberglass, LLC is currently in substantial compliance with their existing permit conditions.

B. Excess Emissions

During an inspection in 2001 it was discovered that SWF had possible excess emissions when they exceeded the allowable styrene content in one of their resins. The material safety data sheet for the resin specified styrene content by weight of 40-60% verses the 50% maximum allowed in the permit. Results of the investigation demonstrated that the styrene content of the specific product was actually 46% and at that time no other enforcement action was warranted. (For guidance PDEQ informed SWF that when a product is given a range, the higher limit is taken as the value of product unless the Permittee can prove otherwise.)

IV. Emissions Estimates

The following emissions estimates are based on information presented in the application (See PTE Calculation Document).

Pollutant	Potential To Emit (Tons Per Year)
Volatile Organic Compounds (VOC)	80.0
Total Hazardous Air Pollutants (HAPS)	80.0

Potential emissions from the facility are controlled by:

1. limiting the maximum usage of resins and gel coats (lbs) per 12-month period per operation type (manual, mechanical or filament application);
2. limiting maximum organic HAP content (% by weight) of styrene per resin/gel coat application method as required in Table 3 and Table 7 of 40 CFR 63 Subpart WWWW.

V. Applicable Requirements

Federally Enforceable Regulations:

Title 40 of the Code of Federal Regulations Part 63:

Subpart WWWW National Emission Standards for Hazardous Pollutants: Reinforced Plastics Composites Production.
(See Appendix 2 of this TSD – NESHAP Subpart WWWW Regulatory Review)

State Implementation Plan, Pima County:

Rule 321 Emissions-Discharge: Opacity Limiting Standards and Applicability
Rule 343 Visibility Limiting Standard
Rule 344 Odor limiting Standard

Non-Federally Enforceable Regulations:

Pima County Code (PCC) Title 17, Chapter 17.16:

17.16.030 Odor Limiting Standards
17.16.040 Standards and Applicability (Visible Emissions)
17.16.050 Visibility Limiting Standards
17.16.400 Organic Solvents and Other Organic Materials
17.16.430 Unclassified Sources
17.20.010 Source Sampling, Monitoring and Testing
17.28.065 Excess Emissions

VI. Permit Contents

Each standard will be addressed relative to the corresponding standard in the previous permit. Where applicable, the citation of the related standard is included [in brackets].

A. Applicability

This is a Class I Stationary Source for a single HAP (styrene), a synthetic minor source of VOC and a true minor of all other pollutants.

B. Emission Limits/ Standards:

II.A Reinforced Plastic Composites Production

- II.A.1 – Resin and gel coat material use limitation to avoid additional recordkeeping and monitoring requirements from 40 CFR 63 Subpart WWWW.
- II.A.2 – Resin application limitation to comply with the resin limitation in II.A.1.
- II.A.3 – Resin HAP percentage limitation per open molding operation and application method. Limitation provides the facility a method of demonstrating compliance with the emission limits identified in Table 3 in 40 CFR 63 Subpart WWWW.
- II.A.4 – Resin HAP percentage limitation per open molding operation and application method. Limitation provides the facility a method of demonstrating compliance with the emission limits identified in Table 7 in 40 CFR 63 Subpart WWWW.
- II.A.5 – White/off White pigmented gel coat styrene and methyl methacrylate limitation. Limitation provides the facility a method of demonstrating compliance with the emission limits identified in Table 3 in 40 CFR 63 Subpart WWWW.
- II.A.6 – Other pigmented gel coat styrene and methyl methacrylate limitation. Limitation provides the facility a method of demonstrating compliance with the emission limits identified in Table 3 in 40 CFR 63 Subpart WWWW.
- II.A.7 – Resin and gelcoat delivery system requirements to utilizing "fluid impingement technology" to produce a non-atomized stream on all spray coat delivery systems. Requirement allows the source to use a lower emission factor to determine the potential to emit identified in Table 3 in 40 CFR 63 Subpart WWWW.
- II.A.8 – Work Practice Standards.
 - II.A.8.a – Compliance with HAP emission limitations and HAP content limits without the use of add-on controls.
 - II.A.8.b – Type of cleaning solvent use restriction, HAP containing materials storage operations and mixing operations.

II.B All Operations

- II.B.1 – Operation and maintenance requirements for minimizing emissions at all times.
- II.B.2 – The Odor Limiting Standard is unchanged from the previous permit.
- II.B.3 – The Opacity Standard has been amended to reflect the April 2005 update to the Pima County Code.
- II.B.4 – Visible Limiting Standard (Property boundary line standard).
- II.B.5 – Material handling standard.
- II.B.6 – Control of Air Pollution.

C. Monitoring Requirements:

- III.A – Reinforced Plastic Composites Production.
 - III.A.1 – Material usage requirement.
 - III.A.2 – Resin usage by operation type requirement.
 - III.A.3 – Collection of material information.
- III.B – All Operations.
 - III.B.1-6 – The monthly inspection requirements have been carried over from the previous permit.

D. Recordkeeping Requirements:

- IV.A – Reinforced Plastic Composites Production.
 - IV.A.1 – Material usage (resin and gel coat) requirement to show compliance with II.A.1 & III.A.1.
 - IV.A.2 – Resin/gel coat usage by operation type requirement to show compliance with II.A.2 & III.A.2.
 - IV.A.3 – Monthly inventory/usage of resins in each operation type.
 - IV.A.4 – Yearly totals of resin used in each operation type.
 - IV.A.5 – Initial notification or notification of compliance status requirement from the MACT.
 - IV.A.6 – Start-up, shutdown and malfunction records.
 - IV.A.7 – Records of performance tests, design and performance evaluations (if required)
 - IV.A.8 – Compliance status report with all work practice standards.

IV.B – Format of Records.

IV.B.1-4– Maintenance of all applicable MACT records in the format requested and as specified.

E. Reporting Requirements:

V.A – Reinforced Plastic Composites Production.

Semiannual reports of required monitoring:

V.A.1 – Total VOC and HAP emissions from each operation/application type.

V.A.2 – VOC and HAP 12-month rolling totals (in tons) of gel coats used.

V.A.3 – Summary of the results of the monthly inspections.

V.A.4 – Summary reports due dates when required to be submitted.

V.B – Compliance Certification Reporting requirements

V.C – Emission Inventory Reporting

V.D – Compliance Plan Requirements

F. Testing Requirements:

All testing requirements have been carried over from the previous permit unchanged [VI.A & B].

G. Miscellaneous Comments:

None

VII. Revised Previous Permit Conditions

There are no revised previous permit conditions in this 2014 permit renewal. The Permittee is continually required to demonstrate compliance with the following limitations:

1. the amount of resin and gel coats per operation type per 12 month period;
2. the percent weight of styrene in the resin product;
3. the HAPs content of the resin product;
4. the percent weight of styrene and percent weight of methyl methacrylate in the gel coat product, and
5. the HAPs content of the gel coat product.

The continual demonstration of compliance with the above emission limitations provides a method to meet the standards for open molding in 40 CFR 63 Subpart WWWW Table 3. The limitations are simply determined from comparing the emission factor in Table 1 to the emission limit in Table 3 of 40 CFR 63 Subpart WWWW.

Instances where the emission factor is calculated to be greater than the limit, the assumed organic HAP content for that particular operation is then reduced proportionally, for example: The PTE emission factor for open molding CR/HS filament application (Table 1 1.e.i) is 195.5 lbs/ton (assuming a 46.4 % organic HAP content); The corresponding emission limit in Table 3 for the same operation is 171 lb/ton. The resin used in this operation is thus required to be limited to: $((171/2000)+0.0298)/0.2746 * 100 = 45.4$ % organic HAP content.

The organic HAP content limit above is then used to determine the adjusted emission factor for the given application. This adjusted emission factor is calculated using the appropriate equation provided in Table 1 of the Subpart WWWW standard, i.e. (Table 1, Equation 1.c.i). The emission factor for open molding, CR/HS, mechanical application would then be: $(0.157 \times 0.456) - 0.0165) \times 2000 = 110.1$ lb/ton.

Potential emissions from the facility are controlled by limiting the maximum usage of resins and gel coats per 12-month period per operation type (manual, mechanical or filament application) and by the maximum organic HAP content (% by weight) per operation type.

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The potential to emit calculations are based on each application operating at maximum capacity:

- Chopper Guns at 10 lbs resin per minute;
- Filament Winders at 15 lbs resin per minute; and
- Gel Coaters at 12 lbs gel per minute

The potential to emit is determined by simply multiplying the capacity of each application by the calculated maximum resin or gel coat usage. The potential to emit for VOC and HAPs was then simply reduced to below 100 tons per year by limiting the amount of resins and gel coats used each month.

The synthetic minor limitation in this renewal permit remains at 80.0 tons per year, and the maximum resins usage holds at 2,306,000 lbs per 12 month period. The synthetic minor limitation and resin usage is a result of the following:

1. All resin and gel coat spray operations are conducted with chopper guns using fluid impingement technology (FIT) nozzles.
2. The emission factor used in determining the emissions from spray operations using FIT control is 112.7 lb/ton (Reference Table 1, 1.c.i, 40 CFR 60 Subpart WWWW). The previous emission factor in Table 1, 1.d, 40 CFR 60 Subpart WWWW was incorrectly chosen to represent the facility operations; In reference to Footnote 5 of Table 1, there are no automated or robotic spray systems in use at the facility. The footnote recommends the use of the appropriate mechanical nonatomized equation for spray operations using hand held spray guns.
3. The source has ceased all spray painting operations (letter dated 09/25/07) and as a result, the previous surface coating permit conditions (reference in II.B) have been removed.
4. The emissions of methyl ethyl ketone peroxide (MEKP) are omitted in the potential to emit calculation since it was delisted from the federal list of HAPs on December 13, 2005.

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The general requirement for the Permittee to develop and implement a written startup, shutdown, and malfunction plan pursuant to 40 CFR 63.5835 (d) does not apply as the facility does not use add-on control devices to meet any organic HAP emissions limits.

The omission of a written startup, shutdown, and malfunction plan eliminates the reporting requirement of 40 CFR 63.5910(c)(4).

The reporting requirements of 40 CFR 63.5910(c)(6) does not apply because the facility does not operate a continuous monitoring system.

The facility is not in the business of coating metal parts and products; as a result, the facility is not subject to the NESHAP for Surface Coating of Miscellaneous Metal Parts and Products, Subpart MMMM.

Attachment 1

Magnum Industries, Inc New Gel-Coat Application Technology Emission Testing

Attachment 2

NESHAP Subpart WWWW Regulatory Review

Proposed TSD

Attachment 2
NESHAP Subpart WWWW Regulatory Review

This appendix describes the regulatory analysis of the applicable NESHAP rule.

40 CFR 63, Subpart WWWW National Emission Standards for Hazardous Air Pollutants for Reinforced Plastic Composites Production

This subpart establishes national emissions standards for hazardous air pollutants (NESHAP) for reinforced plastic composites production. This subpart also establishes compliance options, operating requirements, and work practice requirements to demonstrate initial and continuous compliance with the hazardous air pollutants (HAP) emissions standards for open molding, polymer casting, mixing, and cleaning of equipment procedures used in reinforced plastic composites manufacture. The requirements of this subpart apply to this facility because the facility-wide HAP emissions of the facility exceed major source thresholds.

40 CFR 63.5785(a) Am I subject to this subpart?

The requirements of this subpart apply to this facility because the facility owns or operates a reinforced plastic composites production facility that is located at a major source of HAP emissions.

40 CFR 63.5787 What if I also manufacture fiberglass boats or boat parts?

40 CFR 63.5787(a) applies because the source meets the applicability criteria in 40 CFR 63.5785, and is not subject to the Boat Manufacturing NESHAP (40 CFR Part 63, subpart VVVV). The requirements of 40 CFR 63.5785(b) through (d) do not apply because the facility is not subject to the Boat Manufacturing NESHAP (40 CFR Part 63, subpart VVVV).

40 CFR 63.5790 What parts of my plant does this subpart cover?

In accordance with 40 CFR 63.5790(a), the facility is subject to this subpart because it is a new or existing facility. In accordance with 40 CFR 63.5790(b), the affected sources located at the facility are open molding, mixing, cleaning of equipment used in reinforced plastic composites manufacture, HAP-containing materials storage, and repair operations on parts the facility manufactures.

40 CFR 63.5795 How do I know if my reinforced plastic composites production facility is a new affected source or an existing affected source?

In accordance with 40 CFR 63.5795(a) and (b), the facility is an existing affected source because it began construction before August 2, 2001.

40 CFR 63.5796 What are the organic HAP emissions factor equations in Table 1 to this subpart, and how are they used in this subpart?

This section is informational.

40 CFR 63.5797 How do I determine the organic HAP content of my resins and gel coats?

In accordance with 40 CFR 63.5797, the Permittee may rely on information provided by the material manufacturer, such as manufacturer's formulation data and material safety data sheets (MSDS), using the procedures specified in 40 CFR 63.5797(a) through (c).

40 CFR 63.5798 What if I want to use, or I manufacture, an application technology (new or existing) whose organic HAP emissions characteristics are not represented by the equations in Table 1 to this subpart?

This section does not apply to the Permittee.

40 CFR 63.5799

How do I calculate my facility's organic HAP emissions on a tpy basis for purposes of determining which paragraphs of 40 CFR 63.5805?

In accordance with 40 CFR 63.5799, the facility is a “existing” facility, and must use the procedures in either paragraph (b)(1) or (2) of this section to calculate the facility’s organic HAP emissions in tpy for purposes of determining which paragraphs in 40 CFR 63.5805 apply to the facility.

40 CFR 63.5800

When do I have to comply with this subpart?

In accordance with 40 CFR 63.5800, the Permittee must comply with the standards in this subpart by the dates specified in Table 2 to this subpart. For an existing source, the date specified in Table 2 is April 21, 2006. The Permittee has organic HAP emissions standard based on a 12-month rolling total, and, therefore, must begin collecting data on the compliance date in order to demonstrate compliance.

40 CFR 63.5805

What standards must I meet to comply with this?

40 CFR 63.5805(a), (a)(1), and (a)(2) of (a) do not apply to the facility because it does not have any centrifugal casting or continuous casting/lamination operations. In accordance to 40 CFR 63.5805(b) the Permittee must meet the organic HAP emissions limits in Table 3 to this subpart and the work practice standards in Table 4 to this subpart that apply, regardless of the quantity of HAP emitted. The requirements of 40 CFR 63.5805(c) through (g) do not apply because the facility is not a new source nor is it a existing source subject to the provisions of (a)(2) or (c) of the subpart. 40 CFR 63.5805(h) does not apply because the facility does not use an add-on control device to comply with this subpart.

40 CFR 63.5810

What are my options for meeting the standards for open molding and centrifugal casting operations at new and existing sources?

The facility must use one of the methods in 40 CFR 63.5810 paragraphs (a) through (d) to meet the standards for open molding in Table 3 of this subpart.

40 CFR 63.5820

What are my options for meeting the standards for continuous lamination/casting operations?

Paragraphs (a) through (d) of this section do not apply to the facility because the facility has open molding operations, and is not subject to the standards continuous lamination/casting operations.

40 CFR 63.5830

What are my options for meeting the standards for pultrusion operations subject to the 60 weight percent organic HAP emissions reductions requirement?

40 CFR 63.5830 and paragraphs (a) through (d) of the section do not apply to the facility because the facility has open molding operations, and is not subject to the standards for pultrusion operations subject to the 60 weight percent organic HAP emissions reductions requirement.

40 CFR 63.5835

What are my general requirements for complying with this subpart?

Paragraph (a) of this section applies to the facility and requires the facility to be in compliance at all times with the work practice standards in Table 4 and the organic HAP emissions limits in Table 3. Paragraph (b) of this section does not because the facility does not use add-on controls. Paragraphs (c) and (d) of 40 CFR 63.5835 generally apply to all facilities subject to 40 CFR 63, Subpart WWWW.

40 CFR 63.5840

By what date must I conduct a performance test or other initial compliance demonstration?

The facility must comply with the data collection and compliance demonstration requirements of this paragraph by the compliance date specified by 40 CFR 63.5800. Because the facility is an open molding operation that elected to meet a organic HAP emissions limit on a 12-month rolling total, the facility must initiate collection of the required data on the compliance date, and demonstrate compliance 1 year after the compliance date.

40 CFR 63.5845 When must I conduct subsequent performance tests?

This section does not apply to the Permittee because it does not operate an add-on control device to meet a standard.

40 CFR 63.5850 How do I conduct performance tests, performance evaluations, and design evaluations?

This section does not apply to the Permittee because these requirements apply to facilities that operate an add-on control device to meet a standard.

40 CFR 63.5855 What are my monitor installation and operation requirements?

This section does not apply to the Permittee because these requirements apply to facilities that operate an add-on control device to meet a standard.

40 CFR 63.5860 How do I demonstrate initial compliance with the standards?

Paragraph (a) of this section applies to the facility and requires the facility demonstrate initial compliance with each applicable organic HAP emissions standard in 40 CFR 63.5805 paragraphs (a) through (h) by using the procedures shown in Tables 8 and 9 of this subpart. Specifically, only item 1 of Table 8 applies, and item 3 of Table 9 apply. Paragraph (b) of this section does not apply to the Permittee because these requirements apply to facilities that operate an add-on control device to meet a standard.

40 CFR 63.5865-5890 What data must I generate to demonstrate compliance with the standards for continuous lamination/casting operations?

This section does not apply to the Permittee because these requirements apply to facilities that have continuous lamination/casting operations. The facility has open molding operations.

40 CFR 63.5895 How do I monitor and collect data to demonstrate continuous compliance?

Paragraph (a) of this section does not apply to the Permittee because this requirement applies to facilities that operate an add-on control device to meet a standard. Paragraphs (b), (b)(1) through (b)(3), (c) and (d) of this section apply. Paragraph (4) is informational. Paragraph (e) of this section does not apply to the Permittee because this requirement applies to facilities that operate pultrusion machines.

40 CFR 63.5900 How do I demonstrate continuous compliance with the standards?

Paragraph (a)(1) and (d) of this section do not apply to the Permittee because these requirements apply to facilities that operate an add-on control device to meet a standard. Paragraphs (a)(2) through (a)(4), (b), (c) and (e) of this section apply.

40 CFR 63.5905 What notifications must I submit and when?

Paragraphs (a) and (b) of this section apply. The facility is subject to the initial notification requirements for existing sources under Table 13.

40 CFR 63.5910 What reports must I submit and when?

Paragraphs (a), (b), (b)(1) through (b)(5), (c), (c)(1) through (c)(5), (h), (i) and (g) of this section apply. Paragraphs (c)(6), (e), and (e)(1) through (e)(12) do not apply because the facility does not operate a continuous monitoring system. Paragraph (f) does not apply because 40 CFR 63.5805(a)(1) and (d).

40 CFR 63.5915

What records must I keep?

Paragraphs (a), (a)(1) through (3), (c), and (d) of this section apply. Paragraphs (b) of this section does not apply to the Permittee because this requirement applies to facilities that operate an add-on control device, which the Permittee does not. Paragraphs (e)(1) through (4) of this section do not apply because the facility does not have new or existing continuous lamination/ casting operations.

40 CFR 63.5920

In what form and how long must I keep my records?

Paragraphs (a) through (d) of this section apply.

40 CFR 63.5925

What parts of the General Provisions apply to me?

This section and Table 15 of Subpart WWWW, applies to this facility as specified.

40 CFR 63.5930

Who implements and enforces this subpart?

This section does not apply to the facility

40 CFR 63.5935

What definitions apply to this subpart?

The definitions of this section apply to the facility.

Proposed TSD