

November 21, 2000

MEMORANDUM

TO: Stephen West
Regional Administrator
Boise Regional Office

FROM: Zach Klotovich 
Environmental Engineer
State Technical Services Office

SUBJECT: **PERMIT TO CONSTRUCT TECHNICAL ANALYSIS**
P-000086, Fiberglass Systems, Inc., Boise
(MEKP Increase, PTC No. 001-00101 Modification)

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200 (*Rules for the Control of Air Pollution in Idaho*) for issuing Permits to Construct (PTC).

PROJECT DESCRIPTION

Fiberglass Systems, Inc. (FSI) has requested an increase in allowable MEKP (methyl ethyl ketone peroxide) emissions from 0.13 lb/hr and 0.57 T/yr to 1.6 lb/hr and 7.0 T/yr. FSI has installed new low-pressure spray guns in order to prepare for the upcoming MACT standard.

The monthly VOC emission limit was also modified to be consistent with the annual VOC emission limit. For a more complete explanation see section 8.1 of this technical memorandum.

SUMMARY OF EVENTS

On July 18, 2000, the Idaho Department of Environmental Quality (DEQ) received a modification request from FSI for the increase in MEKP emissions.

In the permit issued May 2, 1995, allowable emission limits for MEKP were 0.55 lb/hr and 2.4 T/yr. In the December 18, 1998 permit, MEKP emission limits were reduced to 0.04 lb/hr and 0.2 T/yr which was more representative of FSI's actual emissions. On June 16, 2000, permitted MEKP emissions were increased to 0.13 lb/hr and 0.57 T/yr at FSI's request. FSI now requests an increase in allowable MEKP emissions to 1.6 lb/hr and 7.0 T/yr.

DISCUSSION

1. **Process Description**

Contact molding begins with the application of a mold release, which is applied depending on a number of process factors influencing part release. Finish surface material is applied, usually a pigmented polyester resin commonly referred to as gel-coat. The finish surface material is generally applied with spray equipment in a spray booth. Molds are then staged for the gel-coat to cure. The cure time varies depending on the ambient room temperature. Molds usually pass through the curing booth. Surface finish application is followed by

application of gel-coat paste and barrier coat application. This step is usually omitted if the product does not require a high level of surface cosmetic quality. Molds are then routed to a series of three (3) fiberglass reinforced plastic (FRP) lamination application spray booths. An unfilled resin or a filled resin matrix is applied in each booth depending on the product and laminate specifications. In each laminate application, the curing takes place outside the spray booth at room temperature. After curing, the product is removed from the mold and proceeds to a trim booth where the edges are machined and cut to meet product specifications. After inspection and mold blem, or process defect repair, the product is crated for shipment. In the instance of jetted bathing units, they proceed to the plumbing area where PVC plumbing, pumps, and jets are attached prior to crating for shipment. Enclosed piping systems are used to facilitate movement of polyester resin and gel-coat from the mixing and storage rooms separated from the production floor. The polyester resin is primarily purchased and stored in bulk with some tote and drum purchases, while the gel-coat is primarily purchased in drums with some tote and pail purchases. Inert fillers are purchased in pallet or truck quantities to mix with the resin solutions.

2. Equipment

FSI has switched to low-pressure spray guns for application of resin and fiberglass. The old spray guns atomized the resin and its catalysts as they were sprayed. The resin and catalysts exited the gun in separate streams and mixed in mid-air. The new low-pressure spray guns do not atomize the materials, so they are mixed within the gun before being sprayed. Due to this change, the catalyst/resin mixture was modified resulting in an increased use of MEKP.

3. Emission Estimates

FSI estimates emissions by assuming 100% of the MEKP in the catalyst is emitted.

4. Modeling

Modeling was performed for the original permit in 1994 using a "representative stack". This modeling analysis was also relied upon when permitted emission limits for MEKP were increased in 1995 to 0.55 lb/hr and 2.4 T/yr. According to the 1994 memo from Chris Johnson, Air Quality Meteorologist, EPA recommended using a "representative stack," because emissions come from numerous roof vents which all exhaust from the same large work area. The results of that analysis predicted 0.09 ug/m³ concentration for a 0.006 g/s (0.0476 lb/hr) emission rate.

Idaho's acceptable ambient concentration for MEKP is 0.0075 mg/m³, or 7.5 ug/m³ on a twenty-four hour average. Using a ratio to determine allowable emissions produces an allowable emission rate of 1.6 lb/hr and 7.0 T/yr. Calculations are given in Appendix A.

5. Facility Classification

The facility is a major facility as defined in IDAPA 58.01.01.006.55 and IDAPA 58.01.01.008.10. The facility is not a designated facility as listed in IDAPA 58.01.01.006.27. The facility is a fiberglass fabrication facility (SIC 3079).

6. Area Classification

The facility is located in Boise, Idaho, which is in Northern Ada County, AQCR 64, Zone 11. The Northern Ada County/Boise area is designated as nonattainment for carbon monoxide and attainment or unclassifiable for other criteria pollutants except PM-10. The classification for PM-10 is the subject of an ongoing lawsuit.

7. Regulatory Review

IDAPA 58.01.01.201 Permit to Construct Required

A PTC is required because emissions of MEKP exceed the screening level.

IDAPA 58.01.01.210 Demonstration of Preconstruction Compliance with Toxic Standards

Emissions of MEKP are limited to prevent the ambient concentration from exceeding the Acceptable Ambient Concentration for MEKP given in IDAPA 58.01.01.585.

IDAPA 58.01.01.577 Ambient Air Quality Standards for Specific Air Pollutants

There are no Ambient Air Quality Standards for MEKP in IDAPA 58.01.01.577.

40 CFR 52 Prevention of Significant Deterioration

The MEKP emission increase does not exceed any significant threshold, so PSD is not applicable.

40 CFR 60 New Source Performance Standards

Manufacturing of fiberglass products is not an affected source under 40 CFR 60.

40 CFR 61 & 63 National Emission Standards for Hazardous Air Pollutants & MACT

Fiberglass Systems is not currently subject to any standard listed under 40 CFR 61 or 63.

8. Permit Requirements

8.1 Emission Limits

The emission limits for MEKP in Appendix A of the permit were increased to 1.6 lb/hr and 7.0 T/yr.

Allowable monthly VOC emissions were changed from 28,859.8 lb/mo to 30 T/mo because the 28,859.8 lb/mo limit was undocumented and did not make sense in relation to the annual limit.

$$28,859.8 \text{ lb/mo} \times (12 \text{ months/yr}) / (2000 \text{ lb/T}) = 173.16 \text{ T/yr}$$

The basis for the annual VOC limit (332.5 T/yr) and annual styrene limit (253.9 T/yr) is documented in the PTC tech memo dated May 2, 1995. The 30 T/mo limit allows FSI some flexibility in monthly VOC usage rates. DEQ was going to change the monthly VOC limit to 28.8 T/mo, but this would still have been less than the allowable monthly styrene emission limit (29.7 T/mo).

8.2 Operating Requirements

Operating requirements did not change.

9. Permit Coordination

The modified MEKP and VOC emission rates are included in the Title V permit.

10. AIRS Information

Allowable MEKP emissions from the facility increased to 1.6 lb/hr and 7.0 T/yr.

FEES

The Fiberglass Systems facility is a major facility as defined in IDAPA 58.01.01.008.10 and is therefore subject to registration and registration fees in accordance with IDAPA 58.01.01.526.

RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommend that Fiberglass Systems be issued a modified Permit to Construct for their Boise facility. A 30-day public comment period was held from September 20, 2000 to October 20, 2000 in accordance with IDAPA 58.01.01.209. One comment was received regarding the attainment status of PM-10 in North Ada County. The comment was addressed in the Area Classification section of this technical memorandum.

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cc: Boise Regional Office
DEQ State Office
EPA Region 10

Appendix A

Allowable MEKP Emission Calculations

MEKP Emission Limits

$$AAL = 0.0075 \text{ mg/m}^3 = 7.5 \text{ } \mu\text{g/m}^3 \text{ (24-hr avg.)}$$

Modeled Impact - 0.006 g/s emission rate \rightarrow 0.09 $\mu\text{g/m}^3$

$$0.006 \text{ g/s} = 0.0476 \text{ lb/hr}$$

$$\frac{0.0476 \text{ lb/hr}}{0.09 \text{ } \mu\text{g/m}^3} = \frac{x \text{ lb/hr}}{7.5 \text{ } \mu\text{g/m}^3}$$

$$\frac{0.0476 \text{ lb/hr (7.5 } \mu\text{g/m}^3)}{0.09 \text{ } \mu\text{g/m}^3} = 3.96 \text{ lb/hr}$$

$$3.96 \text{ lb/hr (0.4 [24 hr persistence factor])} = 1.6 \text{ lb/hr}$$

$$1.6 \text{ lb/hr (8760 hr/yr) } \left(\frac{1 \text{ T}}{2000 \text{ lb}} \right) = 7 \text{ T/yr}$$

**RESPONSES TO COMMENTS AND QUESTIONS
SUBMITTED ON FIBERGLASS SYSTEMS PROPOSED PERMIT TO CONSTRUCT**

I. Introduction

A 30-day public comment period on Fiberglass Systems proposed Permit to Construct (PTC) was held from September 20, 2000 to October 20, 2000 in accordance with IDAPA 58.01.01.209 (*Rules for the Control of Air Pollution in Idaho*). One comment was received from the Idaho Clean Air Force. This response package contains the comment received during the comment period and the Department of Environmental Quality's (DEQ) responses to the comment.

DEQ has amended the technical memorandum after considering the comment received during the public comment period. The final permit will be issued to Fiberglass Systems in accordance with IDAPA 58.01.01.209.

II. Responses to Comments and Questions

Comment:

The statement, "The area is classified as nonattainment for carbon monoxide and attainment or unclassifiable for all other criteria pollutants," is inaccurate. The Northern Ada County/Boise area's classification for the criteria pollutant PM-10 is neither of these. The PM-10 designation was revoked, but the area is neither in "attainment" or "unclassifiable" for PM-10.

DEQ Response:

DEQ has included the following explanation of the North Ada County PM-10 classification in the technical memorandum and all engineers have been advised to include the language in subsequent technical memorandums.

The Northern Ada County/Boise area is designated as nonattainment for carbon monoxide and attainment or unclassifiable for other criteria pollutants except PM-10. The classification for PM-10 is the subject of an ongoing lawsuit.