



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI
GOVERNOR

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ACTING COMMISSIONER

**Fiber Materials, Inc.
York County
Biddeford, Maine
A-262-71-X-M**

**Departmental
Findings of Fact and Order
Air Emission License
Minor Revision**

After review of the air emissions license amendment application, staff investigation reports and other documents in the applicant’s file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., § 344 and § 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

Fiber Materials, Inc. (FMI) located in Biddeford, Maine was issued Air Emission License A-262-71-W-R on April 23, 2009 permitting the operation of emission sources associated with their carbon composite manufacturing facility.

FMI has requested a minor revision to their license in order to:

- Clarify the operation of the Accutherm 2 Carbonizer exhaust system
- Clarify the shutting down procedures for the retort ovens
- Decrease the number of cold parts washers
- Delete the polyacrylonitrile graphite fiber process
- Correct maximum heat input design of two incinerators
- Replace the GII Retort Incinerator #7 with a new unit
- Classify the facility as a natural minor instead of a synthetic minor
- Modify VOC and HAP record keeping requirements from 12-month rolling total to an annual basis.

B. Application Classification

This amendment will increase emissions by less than 4 ton/year for each single pollutant and less than 8 ton/year for all pollutants combined. Therefore, this modification is determined to be a minor revision and has been processed as such. The facility has also demonstrated that emissions, even without emission control equipment, is below major source thresholds and therefore the facility is considered a “natural minor” instead of the previous designation of “synthetic minor”.

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C. Revision Descriptions

Accutherm 2 Carbonizer

FMI operates several production carbonization units which are vented to emission control Incinerator #3, however, the Accutherm 2 Carbonizer was converted and dedicated to processing of silicon carbide. This is fully described and was licensed in Air Emission License Amendment, A-262-71-V-M, issued October 12, 2007. Recent questions have been raised as to how the Accutherm exhaust is vented and if the unit is vented to the current incinerator for emission control.

When the vessel was converted and dedicated to processing of silicon carbide, one of the changes was to disconnect the vessel exhaust from the incinerator and exhaust directly to the atmosphere through an exhaust stack through the roof directly over the vessel. This was done for a number of reasons. The off gases from silicon carbide are made-up of 99.9% hydrogen gas, 0.08% silane and 0.02% cyclohexane. The volatility of the hydrogen gas made it to dangerous to vent into the incinerator, which processes pitch from the other carbonizers.

To clarify the operation of the Accutherm 2 Carbonizer atmospheric exhaust stack, the operating system currently exhaust gases of the Accutherm 2 through exhaust stack #33 at approximately 1,000 linear feet per minute. If the hydrogen content of the exhaust were to reach its auto flash point it would flash off in the stack. It should be noted that flash off has not been reported to date. As a precaution, a hydrogen gas detector was mounted on the wall above the vessel and adjacent to the exhaust stack. This exhaust configuration is described fully in Air Emissions License A-262-71-W-R, Section D 2. Carbonization. To clarify the issue, Condition (20) B. 1 will state, "FMI shall exhaust Accutherm 2 gases through stack #33".

Retort Ovens

FMI currently operates retort ovens to carbonize adhesives, FiberForm, and assorted rayon materials such as rayon felt, fiber, and staple. Emissions from the retort ovens are controlled by incinerators which attain a minimum of 1600°F temperature with a retention time of 1.0 seconds. This minor revision will clarify the procedures for shutting off the retort ovens.

Compliance inspectors have noted the wording of Condition (25) of Air Emissions License, A-262-71-W-R, may be misconstrued to require the oven be cooled down to a temperature of 200°F and then 6.5 hours from that point before the incinerator can be shut off. However, the two stack testing results of the retort ovens clearly show that after 6.5 hours from the time the oven is shut off the level of hydrocarbons being exhausted dramatically dropped to negligible levels. The

test results made mention of the oven temperature only as an indicator that an exhaust fan had not been turned on. When proposing the shut down procedure, FMI added the <200°F as an “and/or” as a precaution. The time the retort oven is shut off is recorded and both process log and incinerator log is used to verify the 6.5 hours prior to incinerator shut down. To clarify this issue Condition (25) (A) will be changed as follows:

- (25) A. FMI shall operate each retort incinerator to control emissions while the associated retorts are in operation. Upon turning the power off or gas off to the retort oven the time shall be recorded on the Incinerator Run Sheet and the emission control incinerator will remain on until both of the following conditions are met:
- The incinerator will run minimally for six & one half (6.5) hours after the heat is turned off and,
 - The oven temperature has decreased to <200°F.

Parts Washers

FMI has decreased the number of cold parts washers from three (3) parts washers to two (2). The original parts washer located in Bldg. #5 Maintenance Cage has been removed and disposed of due to the condition of the equipment. A third parts washer is no longer required.

Polyacrylonitrile graphite fiber process

The previously licensed polyacrylonitrile graphite process was idled for several years. FMI has concluded that there is no future need for the polyacrylonitrile graphite fiber process and the associated wet scrubber. This minor revision removes this equipment and the associated license verbiage in paragraph #1 on page 2 under Process Equipment in Air Emissions License, A-262-71-W-R.

Incinerators maximum heat input

This minor revision will correct an error in the existing license, A-262-71-W-R. Under Section D. Process Emission Sources, Subsection 8, Retort Ovens, Incinerators # 5, 6, 7 and 8 are listed as being rated at 0.7 MMBtu/hr. In actuality, Incinerators #7 & 8 are rated as 0.7 MMBtu/hr and Incinerator #5 (Sargent/Bachman) and Incinerator # 6 (Gehrich 1 & 2) are rated as 1.5 MMBtu/hr.

FMI is requesting to license the purchase of a new emission control incinerator. The new incinerator will replace the GII Retort Incinerator #7. The new incinerator will be of the same size and design as the Bachman/Sargent and

Gehnrich 1 & 2 Incinerators with a burner rating of 1.5 MMBtu/hr and with the capability or servicing two large retorts like the Gehnrich retorts at the same time. This type, size and design meet Best Available Control Technology (BACT) for this operation. BACT also includes the requirements to attain a minimum 1600°F temperature with a retention time of 1.0 seconds. The opacity limit will continue to not exceed 10 % based on a six (6) minute block average. Due to the new #7 incinerator unit and correction in maximum heat input capacities of the incinerators, the pound per hour emission limits in Condition (25) D were updated.

Isopropanol

The current license incorrectly states isopropanol as a HAP as found in Section D, 10 (page 10) of the license body and Section 28, A (page 19) of the Order. Both sections refer to Isopropanol as a HAP, which is found in the phenolic resin SC-1008. Isopropanol is not found on the 2008 Consolidated HAP List and is considered a VOC.

Natural Minor Status

FMI has demonstrated to the Department that emissions, even without emission control equipment, is below major source thresholds and therefore the facility is considered a “natural minor” instead of the previous designation of “synthetic minor”. This minor revision will modify the facility’s license requirement in which HAPs and VOCs are recorded. The present license requires miscellaneous HAP, VOC, and natural gas fuel limits on a 12 month rolling total basis. As a natural minor, FMI’s VOC and HAP emission limits (Conditions 27 & 28) and natural gas fuel limit (Condition 17) will be on a calendar year basis.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License Minor Revision A-262-71-X-M, subject to the conditions found in Air Emission License A-262-71-W-R and in the following conditions.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This

License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

The following shall replace Condition (20) (B) of Air Emission License A-262-71-W-R:

- (20) B. When processing silica carbide in the Accutherm 2 Carbonizer:
1. FMI shall exhaust Accutherm 2 gases through the hydrogen exhaust stack #33.
 2. Opacity from the hydrogen exhaust system shall not exceed 10% opacity based on a six (6) minute block average.

The following shall replace Condition (25) (A) of Air Emission License A-262-71-W-R:

- (25) **Retort Ovens** [06-096 CMR 115, BPT]
- A. FMI shall operate each retort incinerator to control emissions while the associated retorts are in operation. Upon turning the power off or gas off to the retort oven the time shall be recorded on the Incinerator Run Sheet and the emission control incinerator will remain on until both of the following conditions are met:
- The incinerator will run minimally for six & one half (6.5) hours after the heat is turned off and,
 - The oven temperature has decreased to <200°F.

The following shall replace Condition (16) of Air Emission License A-262-71-W-R:

(16) **Facility Natural Gas Limit**

Total natural gas use for the facility shall not exceed 100 million cubic feet per year (calendar year basis). Compliance shall be based on fuel receipts from the supplier showing the quantity of fuel delivered. Records of annual fuel use shall be kept on-site. [06-096 CMR 115, BPT]

The following shall replace Condition (27) of Air Emission License A-262-71-W-R:

(27) **Facility VOC Limit**

VOC emissions from FMI shall not exceed a combined annual limit of 15.0 tons (calendar year basis). This limit is based on the FiberForm operation and all other combined VOC emissions from the facility. Compliance with the VOC limit shall be demonstrated by record keeping including the following as necessary: usage, hours of operation, MSDS sheets or manufacturer information.
[06-096 CMR 115, BPT]

The following shall replace Condition (25) (D) of Air Emission License A-262-71-W-R:

(25) D. Emissions shall not exceed the following:

Oven	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Incinerator #7 (GII)	0.02	0.02	0.02	0.20	0.06	0.02
Incinerator #8 (D1)	0.02	0.02	0.02	0.08	0.04	0.04
Incinerator #5 (S1/B1)	0.01	0.01	0.01	0.11	0.04	0.01
Incinerator #6 (Gehrich #1 & #2)	0.01	0.01	0.01	0.11	0.04	0.01

DONE AND DATED IN AUGUSTA, MAINE THIS *26th* DAY OF *October* 2010.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: *James P. Brookings*
BETH NAGUSKY, ACTING COMMISSIONER

The term of this minor revision shall be concurrent with the term of Air Emission License A-262-71-W-R.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 8/13/10

Date of application acceptance: 8/27/10

Date filed with the Board of Environmental Protection:

This Order prepared by Edwin Cousins, Bureau of Air Quality

