



DEPARTMENT ORDER

**Evonik Cyro LLC
York County
Sanford, Maine
A-393-71-AB-M (SM)**

**Departmental
Findings of Fact and Order
Air Emission License
Amendment #2**

FINDINGS OF FACT

After review of the air emission license amendment application, staff investigation reports, and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes (M.R.S.) § 344 and § 590, the Maine Department of Environmental Protection (Department) finds the following facts:

I. REGISTRATION

A. Introduction

Evonik Cyro LLC (Evonik) was issued Air Emission License A-393-71-V-R/M on May 7, 2013, for the operation of emission sources associated with their acrylic plastic resin and sheet products manufacturing facility. The license was subsequently amended on February 18, 2015 (A-393-71-AA-M).

Evonik has requested a minor revision to their license in order to address the following changes:

1. Removal of equipment associated with the polymerization process;
2. Addition of a new Framing operation;
3. Addition of a new space heater; and
4. Clarification of language describing the operation of control equipment.

The equipment addressed in this license amendment is located at 1796 Main Street, Sanford, Maine.

B. Emission Equipment

Evonik's continuous polymerization process, where methyl methacrylate (MMA) was reacted to form a solid acrylic polymer pellet, is no longer in operation. Rather than producing the pellet on site, the pellets are delivered to the facility and offloaded from trucks into the existing silo bank.

The following equipment will be disconnected and removed from the facility:

Fuel Burning Units

Equipment	Maximum Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel	Install. Date	Stack
Hot Oil Heater	4.0	3922.0 scf/hr	Natural gas	1978	#19

Process Equipment

Equipment	Pollutants	Pollution Control Equipment	Stack
<i>Giebel Building</i>			
Post-Color PMMA Extruders	VOC/HAP	2 Condensers followed by 2 Catalytic Oxidizers	Oxidizer #1 and Oxidizer #2
KP Polymerization Process			
<i>Other</i>			
Wiped Film Evaporator	VOC/HAP	Vent Condenser	#3

The two condensers and two catalytic oxidizers (Oxidizers #1 and #2) will remain onsite and will continue to be used to control emissions from the Polymerized MMA Extruding Sheet Lines. The Vent Condenser associated with Wiped Film Evaporator will be disconnected and removed from the facility.

The following tanks that stored MMA waste generated from the manufacturing process and recycled MMA generated from the Wiped Film Evaporator will be permanently removed from operation:

Tank ID	Content	Size (gal)
<i>HWF Facility Tanks</i>		
T-11	Waste from Manufacturing Process (before WFE) or Cleaned MMA (from WFE)	2,000
T-12		2,000
T-13		2,000
T-14		2,000
T-15		2,000
T-16		1,000
T-52	Condensate (Bulk Waste)	5,000
<i>Giebel Building Tanks</i>		
T-80	MMA	30,000
T-81	MMA	30,000
T-82	MA	12,000

The following new equipment and operations are addressed in this air emission license amendment:

Process Equipment

Equipment	Pollutants	Pollution Control Equipment	Stack
Framing Operation	VOC/HAP	None	Fugitive

Evonik has also proposed the addition of a 0.75 MMBtu/hr natural gas-fired space heater to be located in the cold storage area of Building 1. Due to the size of this equipment, it is considered an insignificant activity and listed for completeness purposes only.

C. Application Classification

All rules, regulations, or statutes referenced in this air emission license refer to the amended version in effect as of the issued date of this license.

This amendment will not result in a permitted increase in emissions of any pollutant. Therefore, this amendment is determined to be a minor revision and has been processed as such.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license, the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 C.M.R. ch. 100. Separate control requirement categories exist for new and existing equipment.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in *Definitions Regulation*, 06-096 C.M.R. ch. 100. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

B. Framing Operation

Evonik has proposed a new Framing Operation to be located in Building 1. It will consist of cutting plastic gasket frames and gluing them onto acrylic sheets manufactured at the facility.

1. State Regulations

This process is not subject to *Control of Volatile Organic Compounds from Adhesives and Sealants*, 06-096 C.M.R. ch. 159. The adhesives used in this process are purchased from the supplier in containers with volumes of one gallon or less and are therefore exempt per Section 3(A)(6).

2. BACT Findings

The expected actual uncontrolled emissions from the Framing Operation is estimated to be less than 0.1 tpy of VOC and significantly less HAP. Add-on controls for this process are considered economically infeasible.

BACT for the Framing Operation is inclusion of emissions from this process in the facility-wide VOC and HAP emission limits. Compliance shall be demonstrated by purchase records documenting the quantity of adhesives used and the VOC and HAP content of each substance. Due to the small amount of material expected to be used on a monthly basis, this recordkeeping may be done on a calendar year basis.

C. Clarification of Control Equipment Usage

Emissions of VOC and HAP from the Giebel Building are controlled by two condensers (Condensers #1 and #2) followed by two catalytic oxidizers (Oxidizers #1 and #2). Although the polymerization process no longer operates, this control equipment will continue to be used to control emissions from the Polymerized MMA Extruding Sheet Lines. Each set of controls (i.e. each condenser/oxidizer pair) is capable of operating independently and is sized sufficiently to handle the full load of the Polymerized MMA Extruding Sheet Lines.

These controls are required to achieve a minimum combined destruction efficiency of 95% and cannot exceed total emissions of 1.5 ton/month of MMA. Evonik has requested that the language in the license Conditions be reworded to clarify that compliance with the destruction efficiency and monthly emission limits may be demonstrated by use of one condenser and one oxidizer set and that both condensers/oxidizers are not required to be operated at all times.

Evonik is currently required to demonstrate compliance with the 95% destruction efficiency through performance testing no later than May 7, 2018. Evonik shall conduct this performance testing separately on each oxidizer with the other oxidizer off-line to demonstrate that compliance shall be achieved through the use of either oxidizer alone. Evonik conducted performance testing of Oxidizer #1 in October 2017. This test satisfied the requirement to test Oxidizer #1 by May 7, 2018.

D. Annual Emissions

Evonik shall be restricted to the following annual emissions, based on a 12-month rolling total. The tons per year limits were calculated based on 500 hr/year of operation for each generator and 8,760 hr/year for all other fuel burning units and all process sources. For the Thermal Oxidizer, the worst case lb/hr emissions values were used to calculate the ton/year values.

Total Licensed Annual Emissions for the Facility
Tons/year
 (all except PM₁₀, CO, and HAP used to calculate the annual license fee)

Unit	PM	PM₁₀	SO₂	NO_x	CO	VOC	Single HAP	Total HAP
Giebel Boiler #1	2.8	2.8	0.04	5.5	4.6	0.3	--	--
Heater #1	0.2	0.2	0.003	0.5	0.4	0.03	--	--
Heater #2	0.2	0.2	0.003	0.5	0.4	0.03	--	--
Heater #3	0.2	0.2	0.003	0.5	0.4	0.03	--	--
Heater #4	0.4	0.4	0.004	0.7	0.6	0.04	--	--
Thermal Oxidizer	0.2	0.2	0.24	1.6	0.9	0.2	--	--
Building #1 Generator	0.1	0.1	0.001	3.2	0.7	0.3	--	--
Giebel Building Generator	0.1	0.1	0.001	3.5	0.8	0.3	--	--
Fire Pump Generator	0.1	0.1	0.001	1.9	0.4	0.2	--	--
Process Emissions	--	--	--	--	--	38.5	9.99	24.9
Total TPY	4.3	4.3	0.3	17.9	9.2	39.9	9.99	24.9

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, and
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License Amendment A-393-71-AB-M subject to the conditions found in Air Emission License A-393-71-V-R/M, in amendment A-393-71-AA-M and the following conditions.

Severability. The invalidity or unenforceability of any provision of this License Amendment or part thereof shall not affect the remainder of the provision or any other provisions. This License Amendment shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

Condition (17) of Air Emission License A-393-71-V-R/M is Deleted.
(Removal of Hot Oil Heater)

The following shall replace Condition (21) of Air Emission License A-393-71-V-R/M:

(21) Process Emission Sources: Giebel Building

- A. Visible emissions from the Bin Vent Filter on Silo #7 shall not exceed 20% opacity on a six-minute block average basis except for no more than one six-minute block average in a one-hour period. Evonik shall keep records of all baghouse maintenance on the Silo #7 Bin Vent Filter. [06-096 C.M.R. ch. 115, BPT]
- B. Evonik shall operate at least one condenser and catalytic oxidizer during all times the Polymerized MMA Extruding Sheet Lines are operating to control VOC and HAP emissions. Each condenser and oxidizer combination shall achieve a VOC/HAP destruction efficiency of at least 95%. [06-096 C.M.R. ch. 115, BACT]
- C. The total combined emissions from Catalytic Oxidizer Stacks #1 and #2 shall not exceed 1.5 tons MMA per month and 0.2 tons MA per month.
[06-096 C.M.R. ch. 115, BPT]

- D. By May 7, 2018 and once every five calendar years, Evonik shall conduct performance testing on Condenser #1/Oxidizer #1 and Condenser #2/Oxidizer #2 (i.e., each control grouping) to demonstrate that each is achieving a destruction efficiency of at least 95%. Evonik shall conduct this performance testing separately on each condenser/oxidizer with the other condenser/oxidizer off-line to demonstrate that compliance shall be achieved through the use of either condenser/oxidizer alone.
[06-096 C.M.R. ch. 115, BACT]
- E. By the 21st of each month and using the most recently recorded monthly and quarterly vent monitoring of the air velocity, temperature, MMA ppm, MA ppm, and run time hours, Evonik shall calculate the average daily emissions of MMA and of MA from Catalytic Oxidizer Stacks #1 and #2 for the previous month.
[06-096 C.M.R. ch. 115, BPT]
- F. Evonik shall continue operational practices to minimize VOC and HAP emissions and monitoring practices to document monthly emissions from the Giebel Building process sources, including conducting monthly and quarterly vent monitoring of air velocity, temperature, MMA and MA concentrations in the exhaust, and run time hours.
[06-096 C.M.R. ch. 115, BPT]
- G. Evonik shall monitor, record, and keep the following records, as applicable:
1. Records for each oxidizer of all startups, shutdowns, and malfunctions including date, time, and duration. For malfunctions, the cause and the method utilized to minimize duration of the event and/or to prevent reoccurrence shall also be recorded.
 2. Continuously monitor and record during all operating times the inlet and outlet temperatures across the catalyst beds and take corrective action if temperatures are outside of the range between 450 °F and 1000 °F, the appropriate temperature range for adequate VOC/HAP destruction.
 3. Records of the date of drum replacement for the accumulator associated with each condenser.
[06-096 C.M.R. ch. 115, BACT]
- H. Visible emissions from the flat sheet extrusion process saw and grinder dust collector shall not exceed 5% opacity on a six-minute block average except for one six-minute block in a continuous one-hour period. [06-096 C.M.R. ch. 101]

Condition (23) of Air Emission License A-393-71-V-R/M is Deleted.
(Removal of Wiped Film Evaporator)

The following shall replace Condition (27) of Air Emission License A-393-71-V-R/M:

- (27) Evonik shall minimize fugitive VOC and HAP emissions by keeping all containers covered when not in immediate use, as appropriate, and managing materials in such a manner as to reduce the likelihood of spills. [06-096 C.M.R. ch. 115, BPT]

The following shall replace Condition (28) of Air Emission License A-393-71-V-R/M:

(28) **VOC RACT**

Evonik shall control VOC emissions such that the total facility VOC emissions do not exceed, on a daily basis, 15% of the uncontrolled daily VOC emissions. The following are the controls and recordkeeping required by VOC RACT.

A. Evonik shall operate the following:

1. two catalytic oxidizers to capture and control VOC emissions from Giebel Building process sources; and
2. a Thermal Oxidizer to control VOC emissions from the Multi-Functional Coating Facility. [06-096 C.M.R. ch. 134, 06-096 C.M.R. ch. 115, BPT]

B. Evonik shall maintain monthly records of the VOC destruction in the catalytic oxidizers and the Thermal Oxidizer. [06-096 C.M.R. ch. 134, 06-096 C.M.R. ch. 115, BPT]

C. For facility VOC and HAP emissions tracking, fuel use at the facility shall be based on fuel supplier records or data from fuel flow meters, determined monthly and on a 12-month rolling total basis. [06-096 C.M.R. ch. 115, BPT]

D. Evonik shall, by the 21st of each succeeding month, calculate and record the daily total facility wide VOC emissions. Records shall indicate on a daily basis the percent control efficiency for VOC, the control equipment utilized, and all occasions when equipment from which emissions originate was operating but the associated control equipment (Catalytic Oxidizers or Thermal Oxidizer) was not concurrently operating. [06-096 C.M.R. ch. 134, 06-096 C.M.R. ch. 115, BPT]

The following shall replace Condition (29) of Air Emission License A-393-71-V-R/M:

(29) **Monitoring and Recordkeeping Requirements**

A. The following are identified as Parameter Monitors [06-096 C.M.R. ch. 115, BPT]:

1. Temperature monitors on the catalytic oxidizers; and
2. Temperature monitors on the Thermal Oxidizer.

B. Parameter monitors must record accurate and reliable data. If a parameter monitor allows the recording of accurate and reliable data less than 98% of the source operating

time within any quarter of the calendar year, the Department may initiate enforcement action and may include in that enforcement action any period of time that the parameter monitor was not providing accurate and reliable data during that quarter unless the licensee can demonstrate to the satisfaction of the Department that the failure of the system to provide accurate and reliable data was due to the performance of the established quality assurance and quality control procedures or unavoidable malfunctions. [06-096 C.M.R. ch. 115, BPT]

- C. For the dust collector, Thermal Oxidizer, condensers, and catalytic oxidizers, Evonik shall keep maintenance logs recording the dates and reasons for all emission upsets as well as all routine and non-routine maintenance procedures.
[06-096 C.M.R. ch. 115, BPT]

The following are New Conditions:

(34) Framing Operation

- A. VOC and HAP emissions from the Framing Operation shall be included in calculating compliance with the facility-wide VOC and HAP emission limits. [06-096 C.M.R. ch. 115, BACT]
- B. Evonik shall keep records of all chemicals used as part of the Framing Operation. The quantity of chemical used shall be demonstrated by purchase records. Safety Data Sheet (SDS) data shall be used to quantify VOC and HAP content of each substance. Records shall be kept on a calendar year basis. [06-096 C.M.R. ch. 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 8 DAY OF December, 2017.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Mark Allen Robert Cone for
PAUL MERCER, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-393-71-V-R/M.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 10/2/17
Date of application acceptance: 10/12/17

Date filed with the Board of Environmental Protection:

This Order prepared by Lynn Muzzey, Bureau of Air Quality.

