



DEPARTMENT ORDER

**General Alum New England Corp.
Waldo County
Searsport, Maine
A-171-71-T-M**

**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

General Alum New England Corp., also known as GAC Chemical Corporation (GAC), was issued Air Emission License A-171-71-R-R on January 6, 2015, permitting the operation of emission sources associated with their chemical manufacturing facility. The license was subsequently amended on May 22, 2015 (A-171-71-S-M).

The equipment addressed in this license is located at 34 Kidder Point Road, Searsport, Maine.

GAC has requested a minor revision to their license in order to do the following:

1. Expand the production capacity for the Hollow Sphere Pigment Products (HSPP) Process;
2. Remove the Pneumatic Aluminum Trihydrate Conveyor; and
3. Remove the Fish Oil Processing System.

Additionally, the Department is taking this opportunity to update the visible emission limits to conform with the current version of *Visible Emissions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 101.

B. Emission Equipment

The following equipment is addressed in this air emission license amendment:

Process Equipment

| Equipment | Capacity | Pollution Control Equipment |
|--|---|------------------------------------|
| HSPP Process | 4 production lines, 7,200 gal/day per line | Condenser |
| Pneumatic Aluminum Trihydrate Conveyor* | 15 ton/hr | 4 baghouses with 1 outside vent |
| Fish Oil Processing System* | 20 ton/day | scrubber |

*Equipment has been removed or disabled.

Raw Material Storage Tanks

| Equipment | Capacity (gallons) | Pollutant |
|-------------------------------|---------------------------|------------------|
| Butyl Acrylate Tank #1 | 30,000 | VOC |
| Butyl Acrylate Tank #2 | 30,000 | VOC |
| Methyl Methacrylate Tank #1 | 30,000 | VOC, HAP |
| Styrene Tank #1 | 30,000 | VOC, HAP |
| 2-Ethylhexyl Acrylate Tank #1 | 25,000 | VOC |

C. Application Classification

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

This amendment will increase licensed emissions by less than 4 ton/year for each single pollutant not including greenhouse gases (GHG) and less than 8 ton/year for all pollutants combined not including GHG. Therefore, this modification is determined to be a minor revision and has been processed as such.

D. Facility Classification

The facility is licensed as follows:

- As a natural minor source of air emissions, because no license restrictions are necessary to keep facility emissions below major source thresholds for criteria pollutants; and
- As an area source of hazardous air pollutants (HAP), because the licensed emissions are below the major source thresholds for HAP.

II. BEST PRACTICAL TREATMENT (BPT)

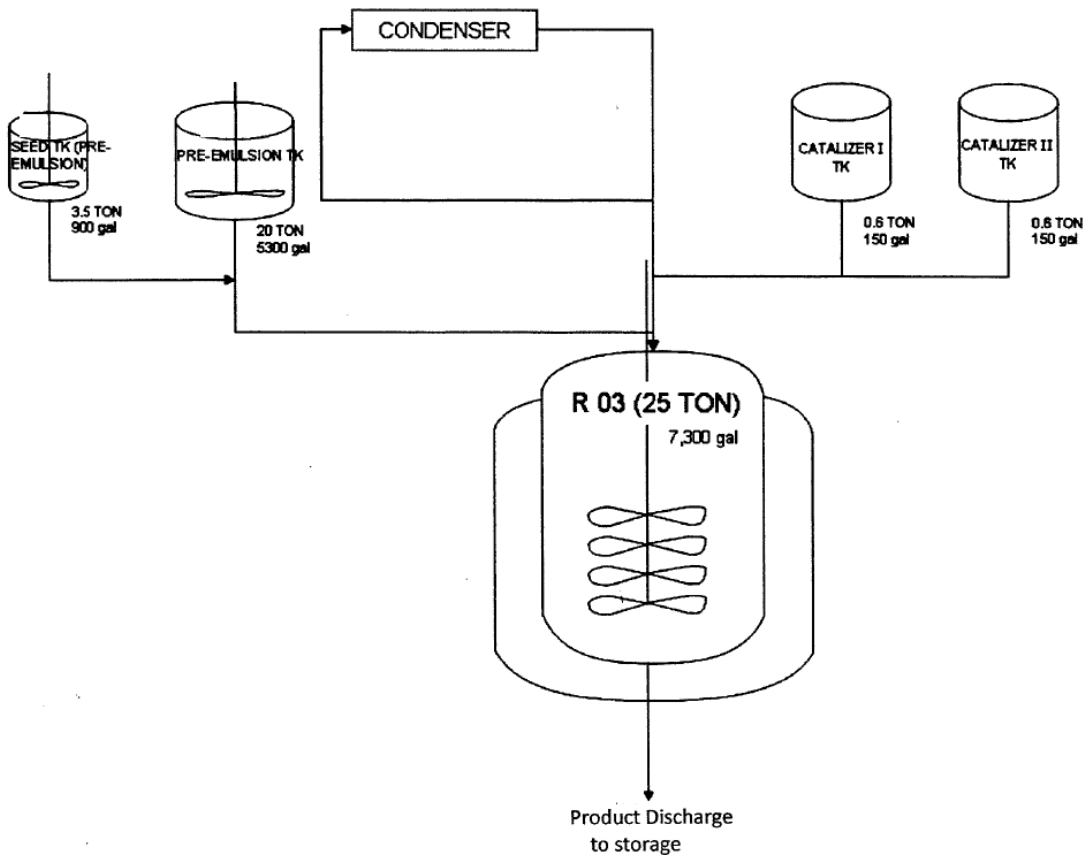
A. Introduction

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.

B. HSPP Process

GAC previously permitted their Hollow Sphere Plastic Pigment (HSPP) Process for the production of water-based, non-hazardous HSPP polymer for use in paper mills, paint manufacturing, and possibly other industries. Below is a basic flowchart of the process.



The HSPP Process involves a proprietary blend of raw materials in water with an emulsion polymerization technique with styrene or other monomers including methyl methacrylate, butyl acrylate, and 2-ethylhexyl acrylate as raw materials to form a non-hazardous, non-HAP or VOC product. A condenser redirects particulate back into the reactor. The process equipment does include a 1" vent which allows for small emissions of styrene or other HAP estimated to be less than 0.1 tpy. Emissions are primarily from product displacement. Operation of the condenser while the HSPP Process is in operation is considered BPT for this equipment.

GAC proposes to expand the existing process. Improvements will include additional raw material storage, pre-emulsion vessels, reactors, and finished product storage. The number of production lines will increase from two to four. Production capacity is expected to increase from 12,000 gal/day to 28,800 gal/day (7,200 gal/day for each production line). The corresponding increase in VOC and HAP emissions is expected to be 0.1 tpy and total emissions from the HSPP Process will not exceed 0.2 tpy of VOC and 0.2 tpy of HAP. GAC states that these numbers are inclusive of emissions from both the production lines and the storage tanks. The Department finds that operation of the condenser while the HSPP Process is in operation continues to represent both BPT for the existing production lines and BACT for the new production lines for the control of VOC and HAP from this process.

Visible emissions from the HSPP Process shall not exceed 10% on a six (6) minute block average basis.

The following raw material storage tanks support the HSPP Process:

| Equipment | Capacity (gallons) | Pollutant |
|-------------------------------|--------------------|-----------|
| Butyl Acrylate Tank #1 | 30,000 | VOC |
| Butyl Acrylate Tank #2 | 30,000 | VOC |
| Methyl Methacrylate Tank #1 | 30,000 | VOC, HAP |
| Styrene Tank #1 | 30,000 | VOC, HAP |
| 2-Ethylhexyl Acrylate Tank #1 | 25,000 | VOC |

The raw material storage tanks are not subject to *Standard of Performance for Volatile Organic Liquid Storage Vessels*, 40 C.F.R. Part 60, Subpart Kb. Subpart Kb specifically exempts storage vessels with a capacity between 75 m³ (20,000 gal) and 151 m³ (40,000 gal) storing a liquid with a maximum true vapor pressure less than 15.0 kPa (§60.110b(b)). The vapor pressures of the chemicals stored are well below this threshold.

As required by Air Emission License A-171-71-S-M (5/22/2015), GAC keeps records of the materials stored in the tanks and the true vapor pressures of those materials to demonstrate they do not exceed 15.0 kPa.

Raw material is delivered either by railcar or truck. When delivered by railcar, the vapors displaced from the receiving tank during tank filling are piped back to the railcar. However, GAC states that emissions were conservatively estimated assuming 100% of the displaced vapors are uncontrolled.

GAC also currently operates five HSPP finished product storage tanks with storage capacities ranging between 11,000 – 17,400 gallons and intends to install an additional eight finished product tanks at 11,000 gallons each. There are no VOC or HAP emissions from the HSPP finished product storage tanks since the HSPP finished product is completely reacted and no longer contains VOC or HAP.

C. Visible Emissions Limits

The following visible emission limits are being updated to conform with the version of 06-096 C.M.R. ch. 101 that became effective on March 21, 2019.

1. Boilers #1 and #2

When Boiler #1 or Boiler #2 is operating alone and firing natural gas, visible emissions from Stack #1 shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 3(A)(3)]

When Boiler #1 or Boiler #2 is operating alone and firing distillate fuel, visible emissions from Stack #1 shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 3(A)(2)]

When Boiler #1 and Boiler #2 are operating simultaneously and both are firing natural gas, visible emissions from Stack #1 shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT]

When Boiler #1 and Boiler #2 are operating simultaneously and either or both are firing distillate oil, visible emissions from Stack #1 shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT]

2. Generator #1

Visible emissions from Generator #1 shall not exceed 20% opacity on a six-minute block average basis except for periods of startup during which time GAC may comply with the following work practice standards in lieu of the numerical visible emissions standard

- a. Maintain a log (written or electronic) of the date, time, and duration of all generator startups.

- b. Operate the generator in accordance with the manufacturer's emission-related operating instructions.
- c. Minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations shall apply.
- d. Operate the generator, including any associated air pollution control equipment, at all times in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Department that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the unit.

[06-096 C.M.R. ch. 101, § 3(A)(4)]

3. Fugitive Emissions

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed 20% opacity on a five-minute block average basis. [06-096 C.M.R. ch. 101, § 3(C)]

4. General Process Emissions

Visible emissions from any general process source shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 3(B)(4)]

D. Annual Emissions

The table below provides an estimate of facility-wide annual emissions for the purposes of calculating the facility's annual air license fee and establishing the facility's potential to emit (PTE). Only licensed equipment is included, i.e., emissions from insignificant activities are excluded. Similarly, unquantifiable fugitive particulate matter emissions are not included except when required by state or federal regulations. Maximum potential emissions were calculated based on the following assumptions:

- A limit of 84,000 MMBtu/year for the boilers and the most conservative emission factor (either for natural gas or fuel oil) for each pollutant;
- Operation for 100 hours/year for Generator #1; and
- The maximum production rate for ammonium sulfate production and HSPP production.

This information does not represent a comprehensive list of license restrictions or permissions. That information is provided in the Order section of this license.

Total Licensed Annual Emissions for the Facility
Tons/year
(used to calculate the annual license fee)

| | PM | PM₁₀ | SO₂ | NO_x | CO | VOC | Total HAP |
|-----------------------------|------------|------------------------|-----------------------|-----------------------|------------|------------|------------------|
| Boilers | 3.4 | 3.4 | 0.1* | 12.6 | 3.4 | 0.2 | neg |
| Generator #1 | neg | neg | neg | 0.3 | 0.1 | neg | neg |
| Ammonium Sulfate Production | 1.2 | 1.2 | neg | neg | neg | neg | neg |
| HSPP Process | neg | neg | neg | neg | neg | 0.2 | 0.2 |
| Total TPY | 4.6 | 4.6 | 0.1 | 12.9 | 3.5 | 0.4 | 0.2 |

*SO₂ emissions for the boilers have been updated to reflect the current maximum sulfur content of the distillate fuel available for purchase in Maine, i.e., 0.0015% by weight.

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-171-71-T-M subject to the conditions found in Air Emission License A-171-71-R-R, in amendment A-171-71-S-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.

SPECIFIC CONDITIONS

The following shall replace Condition (16)(D) of Air Emission License A-171-71-R-R:

(16) Boilers #1 and #2

D. Visible Emissions

1. When Boiler #1 or Boiler #2 is operating alone and firing natural gas, visible emissions from Stack #1 shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 3(A)(3)]
2. When Boiler #1 or Boiler #2 is operating alone and firing distillate fuel, visible emissions from Stack #1 shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 3(A)(2)]
3. When Boiler #1 and Boiler #2 are operating simultaneously and both are firing natural gas, visible emissions from Stack #1 shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT]
4. When Boiler #1 and Boiler #2 are operating simultaneously and either or both are firing distillate oil, visible emissions from Stack #1 shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT]

The following shall replace Condition (17)(D) of Air Emission License A-171-71-R-R:

(17) Generator #1

D. Visible Emissions

Visible emissions from Generator #1 shall not exceed 20% opacity on a six-minute block average basis except for periods of startup during which time GAC may comply with the following work practice standards in lieu of the numerical visible emissions standard.

1. Maintain a log (written or electronic) of the date, time, and duration of all generator startups.
2. Operate the generator in accordance with the manufacturer's emission-related operating instructions.
3. Minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations shall apply.

4. Operate the generator, including any associated air pollution control equipment, at all times in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Department that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the unit.

[06-096 C.M.R. ch. 101, § 3(A)(4)]

Conditions (20) of Air Emission License A-171-71-R-R is Deleted.
(Removal of Fish Oil Processing System)

Condition (21) of Air Emission License A-171-71-R-R is Deleted.
(Removal of Pneumatic Aluminum Trihydrate Conveyor System)

The following shall replace Condition (22) of Air Emission License A-171-71-R-R and Condition (29) of Air Emission License A-171-71-S-M:

(22) HSPP Process

- A. GAC shall operate the associated condenser at all times a HSPP Process line is in operation. [06-096 C.M.R. ch. 115, BACT]
- B. Visible emissions from the HSPP Process shall not exceed 10% on a six (6) minute block average basis. [06-096 C.M.R. ch. 115, BACT]
- C. The maximum true vapor pressure of the material stored in each of the HSPP raw material and final product storage tanks shall be less than 15.0 kPa. Compliance shall be demonstrated by recordkeeping of all materials stored in the tanks and the true vapor pressures of each. [06-096 C.M.R. ch. 115, BACT]

The following shall replace Condition (25) of Air Emission License A-171-71-R-R:

(25) Fugitive Emissions

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed 20% opacity on a five-minute block average basis.
[06-096 C.M.R. ch. 101, § 3(C)]

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10

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The following shall replace Condition (26) of Air Emission License A-171-71-R-R:

(26) **General Process Sources**

Visible emissions from any general process source shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 3(B)(4)]

DONE AND DATED IN AUGUSTA, MAINE THIS 20th DAY OF DECEMBER, 2022.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:  for
MELANIE LOYZIM, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-171-71-R-R.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 10/12/2022

Date of application acceptance: 10/13/2022

Date filed with the Board of Environmental Protection:

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

FILED
DEC 20, 2022
State of Maine
Board of Environmental Protection