



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

**Intermat  
York County  
Biddeford, Maine  
A-302-71-O-R/A**

**Departmental  
Findings of Fact and Order  
Air Emission License  
Renewal with  
After-the Fact Amendment**

**FINDINGS OF FACT**

After review of the air emission license renewal 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

Intermat has applied to renew an Air Emission License for the operation of emission sources associated with their carbon graphite and carbon materials production facility.

The equipment addressed in this license is located at 389 Hill Street, Biddeford, Maine.

Intermat has requested an amendment to their license in order to make the following changes:

1. Establish that the "6 Line Heat Clean System" is considered an insignificant activity;
2. After-the-fact replacement of Boiler #1;
3. After-the-fact replacement of the Grieve Oven;
4. Removal of the Placed Fiber Process;
5. Replacement of the Machine Shop Dust Collector; and
6. Classification of the Aluminum Plasma Spray exhaust as an insignificant activity.

B. Emission Equipment

The following equipment is addressed in this air emission license:

**Fuel Burning Equipment**

Equipment	Max. Capacity (MMBtu/hr)	Maximum Firing Rate (scf/hr)	Fuel Type	Date of Manuf.	Date of Install.
Boiler #1 <sup>1</sup>	1.34	1,300	natural gas	2020	2020
Carbonizer Incinerator	0.80	775	natural gas	Pre-1990	Pre-1990
Graph Incinerator	0.65	630	natural gas	Pre-1990	Pre-1990

**Process Equipment**

Equipment	Max. Raw Material Process Rate	Date of Installation	Pollution Control Equipment	Stack #
Pitch Impregnator	1,200 lb / 24 hrs	1986	Coalescent Filter	6
#1 Atmospheric Carbonizer	1,200 lb / 56 hrs	1986	Carbonizer Incinerator	2
#2 Atmospheric Carbonizer	480 lb / 48 hrs	2003	Carbonizer Incinerator	2
#1 15-K HIP	950 lb / 42 hrs	1986	Spray Condenser or Coalescent Filter	4 or 6
#2 15-K HIP	950 lb / 42 hrs	1986	Spray Condenser or Coalescent Filter	4 or 6
#1 Graphitizer	220 lb / 24 hrs	1986	Graph Incinerator	3
#2 Graphitizer	220 lb / 24 hrs	1986	Graph Incinerator	3
JPW Oven <sup>2</sup>	N/A	2022	Graph Incinerator	3
Heat Cleaning Process <sup>3</sup>	Served Carbon Fiber, 42.5 lb/hr	2002	Graph Incinerator	3
Quartz Process	2-3 billets/month	2008	Coalescent Filter and HIP Scrubber	5
Aluminum Plasma Spray	N/A	2008	Filters	–
Machine Shop	N/A	1986	Cartridge Dust Collector	–
Degreaser	N/A	2002	–	–

The previously licensed Placed Fiber Process is no longer in use.

<sup>1</sup> Previous Boiler #1 was replaced in 2020 by a unit of the same size.

<sup>2</sup> JPW Oven replaced the previously licensed Grieve Oven in 2022.

<sup>3</sup> Excluding the 6 Line Heat Clean System.

Intermat may operate small stationary engines smaller than 0.5 MMBtu/hr. These engines are considered insignificant activities and are not required to be included in this license. However, they are still subject to applicable State and Federal regulations. More information regarding requirements for small stationary engines is available on the Department's website at the link below.

<http://www.maine.gov/dep/air/publications/docs/SmallRICEGuidance.pdf>

Additionally, Intermat may operate portable engines used for maintenance or emergency-only purposes. These engines are considered insignificant activities and are not required to be included in this license. However, they may still be subject to applicable State and Federal regulations.

C. Definitions

Records or Logs mean either hardcopy or electronic records.

D. 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.

Intermat has applied to renew currently licensed emission units as well as amend their license as addressed in Section I(A) above.

The modification of a minor source is considered a major or minor modification based on whether or not expected emission increases exceed the "Significant Emissions" levels as defined in the Department's *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100. The emission increases are determined by subtracting the current licensed annual emissions preceding the modification from the maximum future licensed annual emissions, as follows:

Pollutant	Current License (tpy)	Future License (tpy)	Net Change (tpy)	Significant Emission Levels
PM	0.7	0.6	-0.1	100
PM <sub>10</sub>	0.7	0.6	-0.1	100
PM <sub>2.5</sub>	N/A	0.6	N/A	100
SO <sub>2</sub>	4.0	4.0	0	100
NO <sub>x</sub>	2.7	2.7	0	100
CO	1.1	1.1	0	100
VOC	0.4	0.2	-0.2	50*

\* Intermat is located in an area of the state included in the Ozone Transport Region. Therefore, the significant emission level for VOC is 50 tpy.

Therefore, this license is considered to be both a renewal and a minor modification and has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 Code of Maine Rules C.M.R. ch. 115.

#### E. Facility Classification

The facility is licensed as follows:

- As a natural minor source of criteria pollutants, 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.

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. Process Description

Intermat produces carbon and graphite materials used primarily for defense and aerospace applications. Production of the parts consists of a four-step process: weaving, impregnation, carbonization, and graphitization.

In the weaving step, carbon fiber yarn is hand-woven to create forms that make up the basic structure of each part. The weaving process does not generate any emissions of regulated air pollutants.

Following weaving, the completed carbon fiber forms (also known as “billets”) are impregnated with coal tar pitch in a pair of impregnation vessels. One vessel in the pair is filled with coal tar pitch which is electrically heated to melt the pitch and reduce its viscosity. The other vessel in the pair contains the billet to be impregnated. It is heated to a similar temperature, and the air is evacuated from the vessel containing the billet. The pitch is pumped from the melting vessel into the evacuated vessel, thereby impregnating the billet with coal tar pitch.

The billets then enter the carbonization stage which converts the coal tar pitch to carbon coke. Atmospheric Carbonizers are electrically heated in a nitrogen environment at atmospheric pressure.

As an alternative to the atmospheric carbonization process, some billets are processed using the Hot Isostatic Press (HIP) system. The billets are placed in a large electric furnace which is then placed in an autoclave.

The billets, which are now covered in carbon, go through a graphitization process where the disordered carbon atoms undergo a structural change to create pure graphite. The process must occur at high temperatures to allow the chaotic carbon atoms to travel to form ideal and homogenous graphite layers. The graphitizers are electric induction furnaces. The graphitizers are continuously purged with nitrogen to prevent oxidation of the carbon and/or graphite.

C. Boiler #1

In 2020, Intermat replaced the previously licensed Boiler #1 with a new unit of the same size, which is also named Boiler #1. It is rated at 1.34 MMBtu/hr and fires natural gas.

1. BACT Findings

Intermat has proposed to burn only low-ash, low-sulfur fuels (natural gas) in Boiler #1. Additional add-on pollution controls are not economically feasible due to the cost of control equipment compared to the relatively small amount of pollutant controlled. BACT for emissions from Boiler #1 is determined to be the firing of natural gas and the emission limits listed in the tables below.

- PM/PM<sub>10</sub>/PM<sub>2.5</sub> – 0.05 lb/MMBtu based on 06-096 C.M.R. ch. 115, BACT
  - SO<sub>2</sub> – 0.6 lb/MMscf based on AP-42 Table 1.4-2 dated 7/98
  - NO<sub>x</sub> – 100 lb/MMscf based on AP-42 Table 1.4-1 dated 7/98
  - CO – 84 lb/MMscf based on AP-42 Table 1.4-1 dated 7/98
  - VOC – 5.5 lb/MMscf based on AP-42 Table 1.4-2 dated 7/98
  - Visible – 06-096 C.M.R. ch. 101
- Emissions

The BACT emission limits for Boiler #1 are the following:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	PM <sub>2.5</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1	0.07	0.07	0.07	–	0.13	0.11	0.01

Visible emissions from Boiler #1 shall not exceed 10% opacity on a six-minute block average basis.

2. New Source Performance Standards (NSPS): 40 C.F.R. Part 60, Subpart Dc

Due to its size, Boiler #1 is not subject to *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units* 40 C.F.R. Part 60, Subpart Dc for units greater than 10 MMBtu/hr manufactured after June 9, 1989. [40 C.F.R. § 60.40c]

3. National Emission Standards for Hazardous Air Pollutants (NESHAP): 40 C.F.R. Part 63, Subpart JJJJJ

Boiler #1 is not subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*, 40 C.F.R. Part 63, Subpart JJJJJ. Natural gas-fired units are exempt from the requirements of this regulation. [40 C.F.R. §§63.11195(e)]

D. Pitch Impregnator

The pitch impregnator is made up of two impregnation vessels, installed in 1986. The impregnation vessels are exhausted via a vacuum pump. They emit coal tar pitch volatiles as well as very small amounts of CO. The coal tar pitch volatiles contain both VOC and HAP. Emission estimates are based on a pitch usage of 101,077 lb/year (50.5 ton/year).

The heat for the impregnation vessels is electric. The vessels are also occasionally used to vacuum dry parts after porosity testing.

1. Control Equipment

Hydrocarbon exhaust emissions from the vacuum pump are controlled by a condenser followed by a coalescent filter, with a 99.9% overall collection and control efficiency. The condenser is a three foot tall chamber with baffle plates, trapping hydrocarbons which are driven off from the pitch. The coalescent filter captures oil fumes generated in the vacuum pump. Both the condenser and filter are drained periodically.

2. BPT

BPT for the pitch impregnator system is a throughput limit of 101,077 lb/year, the use of the condenser/coalescent filter system, and a visible emission limit of 10% opacity on a six-minute block average basis. Intermat shall maintain records which include documentation of pitch usage on a monthly and calendar year basis and any repairs or maintenance to the controls and the routine draining of condensate.

Intermat shall maintain a log of the date and details of any repairs or maintenance (planned or unplanned) performed on the condenser and coalescent filter including dates of routine draining of the condensate.

E. Atmospheric Carbonizers

The parts are brought to the carbonization stage after impregnation. Intermat operates two carbonizers, one installed in 1986 and a second, smaller one installed in 2003. The pitch-impregnated billets are heated in a nitrogen environment for a period of time. Then, the billets are cooled over a day and a half. This process converts the material to a dense coke. The carbonization process releases hydrogen, methane, and hydrocarbon vapors.

1. Control Equipment

The carbonizers are controlled by a thermal incinerator (Carbonizer Incinerator) with a 99.99% control efficiency. The carbonizers shall not be operated until the Carbonizer Incinerator reaches a temperature of 1,600 °F, and the incinerator shall be maintained at 1,600 °F throughout the carbonization cycle. The Carbonizer Incinerator shall have a minimum retention time of 0.5 seconds. (It has been calculated to have over double this retention time.) The Carbonizer Incinerator has two chambers and the burner is rated at 0.8 MMBtu/hr firing natural gas. Testing has shown that emissions from the carbonizing process drop to negligible levels after the cooling stage begins.

2. BPT

BPT for the carbonizers is use of the Carbonizer Incinerator to control emissions. Intermat shall record the incinerator temperature, minimum of 1,600 °F, on an hourly basis. Upon power termination to the carbonizer furnace, the use of the incinerator may be discontinued when the temperature of the carbonizer drops below 110 °C (230 °F) and a minimum of eight hours has elapsed from the time the carbonizer power was shut off. At no time shall both carbonizers be powered simultaneously.

Intermat shall maintain a log of the date and details of any repairs or maintenance (planned or unplanned) performed on the Carbonizer Incinerator.

A pyrometer or thermocouple shall be installed and maintained at the location of the incinerator or refractory-lined stack which provides sufficient volume to ensure a flue gas retention time of not less than 0.5 seconds. The temperature of the Carbonizer Incinerator shall be monitored continuously and recorded at least once hourly whenever either atmospheric carbonizer is in operation. Intermat shall keep a log for each atmospheric carbonizer detailing dates and times of operation.

A summary of the BPT analysis for the Carbonizer Incinerator is the following:

- PM/PM<sub>10</sub>/PM<sub>2.5</sub> – 0.05 lb/MMBtu based on 06-096 C.M.R. ch. 115, BPT
- SO<sub>2</sub> – 0.6 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
- NO<sub>x</sub> – 200 lb/MMscf based on twice AP-42, Table 1.4-1, dated 7/98  
due to the high amount of thermal NO<sub>x</sub> expected
- CO – 84 lb/MMscf based on AP-42, Table 1.4-1, dated 7/98
- VOC – 5.5 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
- Opacity – 06-096 C.M.R. ch. 101

The emission limits for the Carbonizer Incinerator are the following:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	PM <sub>2.5</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Carbonizer Incinerator	0.04	0.04	0.04	–	0.16	0.07	–

Visible emissions from the Carbonizer Incinerator shall not exceed 10% opacity on a six-minute block average basis.



F. Hot Isostatic Press (HIP) Vessels

The two Hot Isostatic Press (HIP) vessels (#1 15-K HIP and #2 15-K HIP) were installed in 1986. These vessels are also referred to as PIC (Pressure/Impregnation/Carbonization) vessels.

The billets are placed inside a large electric furnace, which is then placed in an autoclave. The HIP furnace heats the parts while argon is used to pressurize the vessel.

In the standard carbon-carbon HIP cycle, hydrocarbon gases are exhausted from the autoclave during brief pulses. The exhaust gas goes through a tremendous pressure drop, and the cooling that results causes some heavy hydrocarbons to condense out. The exhaust is also cooled by a wet scrubber.

When manufacturing molded-phenolic products, the products are made from 'pre-preg' and molded in the HIP vessels. 'Pre-preg' is carbon-fiber cloth or tape that has been previously impregnated with phenolic resin and heated in the griever oven to remove most of the volatiles in the resin. The 'pre-preg' cloth is molded into the desired form using a combination of moderate temperatures and pressures in the HIP vessels. Thermal decomposition of the resin is not expected at these temperatures. However, any potential emissions are vented through the vacuum pump and controlled by the condenser and coalescent filter shared with the Pitch Impregnator.

1. Control Equipment

The HIP vessels are controlled by a wet scrubber which condenses and removes the heavy hydrocarbons. The HIP Scrubber, approximately five feet tall and five feet in diameter, is rated at 99.9% efficiency for the collection and removal of pitch volatiles.

During 'pre-preg' molding in the HIP vessels, potential emissions are controlled by the condenser and coalescent filter.

2. BPT

BPT for the standard carbon-carbon HIP cycle is the use of the HIP scrubber. Intermat shall operate the scrubber in accordance with the manufacturer's recommendations and shall maintain a minimum scrubber fluid flow rate of 3 gal/min. Compliance shall be demonstrated by records of continuous monitoring of the scrubber fluid flow rate.

BPT for the production of molded phenolic products is the use of the condenser and coalescent filters.

Visible emissions from the HIP scrubber shall not exceed 10% opacity on a six-minute block average basis.

Intermat shall maintain a log of the date and details of any repairs or maintenance (planned or unplanned) performed on the HIP Scrubber.

**G. Graphitizers**

Carbon and phenolic materials are converted to graphite using one of the two electric graphitizer furnaces, both installed in 1986. The carbonized parts are placed in the furnaces and are heated. In order to prevent oxidation of the carbon and/or graphite, the furnaces are continuously purged with nitrogen. Emissions from the graphitizers are drawn from the top of the furnace and are ducted into the 'graph' incinerator.

**1. Control Equipment**

The graphitizer furnaces are controlled by an incinerator (Graph Incinerator) that is rated at 99.99% efficiency. The graphitizers shall not be operated until the Graph Incinerator reaches a temperature of 1,600 °F, and the incinerator shall be maintained at 1,600°F throughout the graphitizer cycle. The Graph Incinerator shall have a minimum retention time of 0.75 seconds. (It has been calculated to have approximately double this retention time.) The Graph Incinerator has a natural gas burner rated at 0.65 MMBtu/hr. Testing has shown that the emissions from the graphitizer process drop to negligible levels after the cooling stage begins.

**2. BPT**

BPT for the graphitizer furnaces is the use of the Graph Incinerator to thermally oxidize emissions. The incinerator shall be operated at a minimum temperature of 1,600 °F and temperature shall be recorded hourly using a chart recorder. Upon power termination to the graphitizer furnace, the use of the Graph Incinerator may be discontinued when the temperature of the graphitizers drops below 700 °C (1,292 °F) and a minimum of 3.5 hours has elapsed from the time the graphitizer power was shut off.

Intermat shall maintain a log of the date and details of any repairs or maintenance (planned or unplanned) performed on the Graph Incinerator.

A pyrometer or thermocouple shall be installed and maintained at the location of the incinerator or refractory-lined stack which provides sufficient volume to ensure a flue gas retention time of not less than 0.75 seconds. The temperature of the Graph Incinerator shall be monitored continuously and recorded at least once hourly whenever either graphitizer is in operation. Intermat shall keep a log for each graphitizer detailing dates and times of operation.

A summary of the BPT analysis for the Graph Incinerator is the following:

- PM/PM<sub>10</sub>/PM<sub>2.5</sub> – 0.05 lb/MMBtu based on 06-096 C.M.R. ch. 115, BPT
- SO<sub>2</sub> – 0.6 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
- NO<sub>x</sub> – 200 lb/MMscf based on twice AP-42, Table 1.4-1, dated 7/98  
due to the high amount of thermal NO<sub>x</sub> expected
- CO – 84 lb/MMscf based on AP-42, Table 1.4-1, dated 7/98
- VOC – 5.5 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
- Opacity – 06-096 C.M.R. ch. 101

The emission limits for the Graph Incinerator are the following:

<b>Unit</b>	<b>PM (lb/hr)</b>	<b>PM<sub>10</sub> (lb/hr)</b>	<b>PM<sub>2.5</sub> (lb/hr)</b>	<b>SO<sub>2</sub> (lb/hr)</b>	<b>NO<sub>x</sub> (lb/hr)</b>	<b>CO (lb/hr)</b>	<b>VOC (lb/hr)</b>
Graph Incinerator	0.03	0.03	0.03	–	0.13	0.05	–

Visible emissions from the Graph Incinerator shall not exceed 10% opacity on a six-minute block average basis.

**H. JPW Oven**

In September 2022, Intermat replaced the Grieve Oven with a JPW Oven. The oven is used for evaporating water from applications of polyvinyl alcohol (PVA) and for curing of urethane rubber inside of molds. Intermat no longer uses phenolic resins.

Intermat proposed to use the Graph Incinerator to control emissions from the JPW Oven. The Department agrees and BACT is determined to be use of the Graph Incinerator to control emissions of VOC and HAP from the JPW Oven. Intermat shall keep a log for the JPW Oven detailing dates and times of operation.

**I. Heat Cleaning Process**

The Heat Cleaning Process, installed in 2002, is used to remove nylon or polyester fibers (serving) which has been wrapped around the carbon fiber yarn. The serving is used to reinforce the carbon and improve its handling characteristics. The serving may be left in place for weaving some materials. However, it must be removed for some applications, such as three-dimensional weaving. In order to remove the serving, the Heat Cleaning Process uses controlled atmospheric pyrolysis which leaves the more resistant carbon fiber relatively unchanged.

Heat cleaning occurs either in the yarn stage or once the yarn is woven into cloth, tape, or similar broad goods.

Continuous-feed natural gas fired tube furnaces are used for heat cleaning in the yarn stage, and a continuous-feed gas fired pyrolysis oven is used for heat cleaning the woven broad

goods. The heat input to each heat cleaning furnace is less than 0.5 MMBtu/hr, and they exhaust to the Graph Incinerator.

1. Emissions Estimates

During the Heat Cleaning Process, it is expected that the serving is mostly combusted. Emissions have been conservatively calculated assuming that the total weight of the serving is exhausted to the incinerator as VOC. An estimated 24% of the total weight of the served fiber and cloth is serving weight. Approximately 42.4 lb/hr can be fired in the pyrolysis ovens/furnaces, so that the serving weight discharged to the Graph Incinerator remains below 10.2 lb/hr.

2. BPT

BPT for the Heat Cleaning Process is the use of the Graph Incinerator to thermally oxidize emissions. Intermat shall keep a log for the heat cleaning process detailing dates and times of operation.

3. 6 Line Heat Clean System

In August 2023, with the Department's approval, Intermat conducted emissions testing of a new heat cleaning process known as the "6 Line Heat Clean System." Results of this testing demonstrated that potential emissions of PM, CO, and VOC were each significantly less than 0.1 tpy. Therefore, this process is considered an insignificant activity pursuant to 06-096 C.M.R. ch. 115, Appendix B, § B.1.

J. Quartz Process

Intermat operates a quartz production process infrequently to produce approximately two to three quartz billets per month. The quartz process includes weaving high purity quartz fibers to form a two- or three-dimensional matrix known as a preform. The preform is then heat cleaned to remove sizing. After heating, the quartz preform undergoes vacuum and/or pressure impregnation with aqueous colloidal silica (SiO<sub>2</sub>). Following the impregnation, the part is oven dried and sintered at a high temperature to form a cohesive structure. The impregnation, drying, and sintering may then be repeated until the final density is reached.

The heat cleaning of the preform matrix at the beginning of the process is vented to the atmosphere. Additional control was not proposed due to the intermittent operations, limited quantity of parts being manufactured, and minimal emissions (based on the Safety Data Sheet (SDS) for a typical quartz fiber yarn).

Impregnation of the quartz matrix with the colloidal silica is conducted using either a vacuum-only impregnation process or a vacuum/pressure impregnation process. In the vacuum-only process, the quartz preform or partially densified quartz part is placed in a

smaller, dedicated silica impregnation vessel, which is then closed, and a vacuum is drawn on the vessel, pulling SiO<sub>2</sub> impregnant into the vessel to infiltrate the part.

If a pressure impregnation is desired to be subsequently applied, the vacuum is released from the vessel, and the impregnation vessel containing the preform and impregnant will be put in one of the existing HIP vessels. After loading the impregnator into the HIP vessel, it is closed and pressurized with gas.

Once impregnated, dried, and sintered, the process may be repeated. All of these processes use electric ovens with no fuel burning emissions.

1. Control Equipment

Particulate matter from the vacuum pump exhaust is controlled with a coalescent filter. As described previously, the pressure relief from the HIP vessel is vented to the HIP scrubber.

2. BPT

BPT for the quartz process is the use of a coalescent filter on the vacuum pump exhaust and the HIP scrubber on the pressure relief from the HIP vessel. Intermat shall keep a log for the Quartz Process detailing dates and times of operation.

K. Aluminum Plasma Spray

The finished quartz parts are machined and the surfaces may then be sprayed with an aluminum/plasma coating. This process is used infrequently and operates on average once per year for about 30 minutes.

The previous license incorrectly stated that the Aluminum Plasma Spray process exhausted to the Machine Shop's dust collector. This process uses a small (table-top size) spray booth equipped with dust collectors (filters) to prevent fugitive emissions to ambient air. Therefore, this process is considered an insignificant activity pursuant to 06-096 C.M.R. ch. 115, Appendix B, § A.66, because the aluminum itself is not a HAP and no HAP gases are used.

L. Machine Shop

The Machine Shop, established in 1986, consists of grinders and saws which create graphite dust and other particulate matter. Flexible hoses collect the dust at each work station via a vacuum. In 2021, the machine shop dust collector that could vent outside was replaced with a high-efficiency Camfil Gold Series X-Flo dust collector capable of reducing particulate matter by 99.9%. This dust collector returns exhaust air back into the

building for energy efficiency purposes. Since there are no emissions to ambient air, this system is considered an insignificant activity.

M. Parts Washer

Intermat operates one parts washer with a design capacity of 20 gallons. This parts washer is subject to *Solvent Cleaners*, 06-096 C.M.R. ch. 130 and records shall be kept documenting compliance.

N. General Process Emissions

Visible emissions from any general process source (e.g., Pitch Impregnator, HIP vessels, Quartz Process) shall not exceed 10% opacity on a six-minute block average basis.

The Department has determined that this BPT visible emission limit is more stringent than the applicable limit in 06-096 C.M.R. ch. 101. Therefore, the general process visible emission limit has been streamlined to the more stringent BPT limit, and only this more stringent limit shall be included in the air emission license.

O. Fugitive Emissions

Intermat shall not cause emissions of any fugitive dust during any period of construction, reconstruction, or operation without taking reasonable precautions. Such reasonable precautions shall be included in the facility's continuing program of best management practices for suppression of fugitive particulate matter. See 06-096 C.M.R. ch. 101, § 4(C) for a list of potential reasonable precautions.

Intermat shall not cause or allow visible emissions within 20 feet of ground level, measured as any level of opacity and not including water vapor, beyond the legal boundary of the property on which such emissions occur. Compliance with this standard shall be determined pursuant to 40 C.F.R. Part 60, Appendix A, Method 22.

P. 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:

- Operating Boiler #1, the Carbonizer Incinerator, the Graph Incinerator, and the Pitch Impregnator for 8,760 hours/year; and
- Operation of the Aluminum Plasma Spray process for 10 hours/year.

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	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
Boiler #1	0.3	0.3	0.3	–	0.6	0.5	0.1
Carbonizer Incinerator	0.2	0.2	0.2	–	0.7	0.3	–
Graph Incinerator	0.1	0.1	0.1	–	0.6	0.2	–
Pitch Impregnator	–	–	–	4.0	0.8	0.1	0.1
<b>Total TPY</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>4.0</b>	<b>2.7</b>	<b>1.1</b>	<b>0.2</b>

Pollutant	Tons/year
Single HAP	9.9
Total HAP	24.9

**III. AMBIENT AIR QUALITY ANALYSIS**

The level of ambient air quality impact modeling required for a minor source is determined by the Department on a case-by case basis. In accordance with 06-096 C.M.R. ch. 115, an ambient air quality impact analysis is not required for a minor source if the total licensed annual emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

Pollutant	Tons/Year
PM <sub>10</sub>	25
PM <sub>2.5</sub>	15
SO <sub>2</sub>	50
NO <sub>x</sub>	50
CO	250

The total licensed annual emissions for the facility are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this license.

This determination is based on information provided by the applicant regarding licensed emission units. If the Department determines that any parameter (e.g., stack size, configuration,

flow rate, emission rates, nearby structures, etc.) deviates from what was included in the application, the Department may require Intermat to submit additional information and may require an ambient air quality impact analysis at that time.

## **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 A-302-71-O-R/A subject to the following conditions.

Severability. The invalidity or unenforceability of any provision of this License or part thereof 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.

### **STANDARD CONDITIONS**

- (1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (38 M.R.S. § 347-C).
- (2) The licensee shall acquire a new or amended air emission license prior to beginning actual construction of a modification, unless specifically provided for in Chapter 115.  
[06-096 C.M.R. ch. 115]
- (3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [06-096 C.M.R. ch. 115]
- (4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction,



reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 C.M.R. ch. 115]

- (5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S. § 353-A. [06-096 C.M.R. ch. 115]
- (6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 C.M.R. ch. 115]
- (7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 C.M.R. ch. 115]
- (8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [06-096 C.M.R. ch. 115]
- (9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license. [06-096 C.M.R. ch. 115]
- (10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license. [06-096 C.M.R. ch. 115]
- (11) In accordance with the Department's air emission compliance test protocol and 40 C.F.R. Part 60 or other method approved or required by the Department, the licensee shall:
  - A. Perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:
    1. Within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
    2. Pursuant to any other requirement of this license to perform stack testing.

- B. Install or make provisions to install test ports that meet the criteria of 40 C.F.R. Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and
  - C. Submit a written report to the Department within thirty (30) days from date of test completion.  
[06-096 C.M.R. ch. 115]
- (12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:
- A. Within thirty (30) days following receipt of the written test report by the Department, or another alternative timeframe approved by the Department, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 C.F.R. Part 60 or other method approved or required by the Department; and
  - B. The days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and
  - C. The licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.  
[06-096 C.M.R. ch. 115]
- (13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or license requirement. [06-096 C.M.R. ch. 115]
- (14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emissions and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [06-096 C.M.R. ch. 115]

- (15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [06-096 C.M.R. ch. 115]
- (16) The licensee shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (38 M.R.S. § 605). [06-096 C.M.R. ch. 115]

**SPECIFIC CONDITIONS**

(17) **Boiler #1**

- A. Boiler #1 shall fire only natural gas. [06-096 C.M.R. ch. 115, BACT]
- B. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BACT]:

<b>Emission Unit</b>	<b>PM (lb/hr)</b>	<b>PM<sub>10</sub> (lb/hr)</b>	<b>PM<sub>2.5</sub> (lb/hr)</b>	<b>SO<sub>2</sub> (lb/hr)</b>	<b>NO<sub>x</sub> (lb/hr)</b>	<b>CO (lb/hr)</b>	<b>VOC (lb/hr)</b>
Boiler #1	0.07	0.07	0.07	–	0.13	0.11	0.01

- C. Visible emissions from Boiler #1 shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 4(A)(3)]
- (18) **Pitch Impregnator**
- A. Intermat is licensed to operate one pair of pitch impregnation vessels. [06-096 C.M.R. ch. 115, BPT]
- B. Emissions from the pitch impregnator system shall vent through the condenser/coalescent filter system. [06-096 C.M.R. ch. 115, BPT]
- C. Intermat shall not exceed a pitch usage rate of 101,077 lb/year (50.5 tons/year). Records shall be maintained documenting pitch usage on a monthly and calendar year total. [06-096 C.M.R. ch. 115, BPT]
- D. A log shall be maintained documenting any repairs or maintenance on the control equipment. The log shall also include documentation on the routine draining of condensate, including the date and time the filters are drained. [06-096 C.M.R. ch. 115, BPT]

E. Visible emissions from the pitch impregnation vessel vent shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT]

(19) **Atmospheric Carbonizers**

A. Intermat is licensed to operate two atmospheric carbonizers. [06-096 C.M.R. ch. 115, BACT]

B. Intermat shall continuously control VOC and HAP emissions from the Atmospheric Carbonizers by the use of the Carbonizer Incinerator. Upon power termination to the carbonizer furnace, the use of the Carbonizer Incinerator may be discontinued when the temperature of the carbonizer drops below 110 °C (230 °F) and a minimum of eight hours has elapsed from the time the carbonizer power was shut off. [06-096 C.M.R. ch. 115, BPT]

C. Intermat shall maintain a log of the date and details of any repairs or maintenance (planned or unplanned) performed on the Carbonizer Incinerator. [06-096 C.M.R. ch. 115, BPT]

D. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BPT]:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	PM <sub>2.5</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Carbonizer Incinerator	0.04	0.04	0.04	–	0.16	0.07	–

E. The carbonizers shall not be operated until the Carbon Incinerator reaches a temperature of 1,600 °F, and the Carbon Incinerator shall maintain a minimum temperature of 1,600 °F (871 °C) at all times during a carbonization process. [06-096 C.M.R. ch. 115, BPT]

F. A pyrometer or thermocouple shall be installed and maintained at the location of the incinerator or refractory-lined stack which provides sufficient volume to insure a flue gas retention time of not less than 0.5 seconds. [06-096 C.M.R. ch. 115, BPT]

G. The temperature of the Carbonizer Incinerator shall be monitored continuously and recorded at least once hourly whenever any associated carbonizer is in operation. [06-096 C.M.R. ch. 115, BPT]

H. Intermat shall keep a log for each carbonizer detailing dates and times of operation. [06-096 C.M.R. ch. 115, BPT]

- I. Visible emissions from the Carbonizer Incinerator shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT]

**(20) HIP Vessels**

- A. Intermat is licensed to operate two Hot Isostatic Press (HIP) vessels (#1 15-K HIP and #2 15-K HIP). [06-096 C.M.R. ch. 115, BPT]
- B. Intermat shall control emissions from the HIP Vessels with the HIP scrubber during the standard carbon-carbon HIP cycle or the quartz process. [06-096 C.M.R. ch. 115, BPT]
- C. Intermat shall control emissions from the production of molded phenolic products in the HIP vessels with the condenser and coalescent filters. [06-096 C.M.R. ch. 115, BPT]
- D. Intermat shall operate the scrubber in accordance with the manufacturer's recommendations and shall maintain a minimum scrubber fluid flow rate of 3 gal/min. Compliance shall be demonstrated by records of continuous monitoring of the scrubber fluid flow rate. [06-096 C.M.R. ch. 115, BPT]
- E. Intermat shall maintain a log of the date and details of any repairs or maintenance (planned or unplanned) performed on the HIP Scrubber. [06-096 C.M.R. ch. 115, BPT]
- F. Visible emissions from each HIP vessel shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT]

**(21) Graphitizers**

- A. Intermat is licensed to operate two graphitizers. [06-096 C.M.R. ch. 115, BPT]
- B. Intermat shall continuously control VOC and HAP emissions from the Graphitizers whenever operated by the use of the Graph Incinerator. Upon power termination to the graphitizer furnace, the use of the Graph Incinerator may be discontinued when the temperature of the graphitizers drops below 700 °C (1,292 °F) and a minimum of 3.5 hours has elapsed from the time the graphitizer power was shut off. [06-096 C.M.R. ch. 115, BPT]
- C. Intermat shall maintain a log of the date and details of any repairs or maintenance (planned or unplanned) performed on the Graph Incinerator. [06-096 C.M.R. ch. 115, BPT]

D. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BPT]:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	PM <sub>2.5</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Graph Incinerator	0.03	0.03	0.03	–	0.13	0.05	–

- E. The graphitizers shall not be operated until the Graph Incinerator reaches a temperature of 1,600 °F, and the Graph Incinerator shall maintain a minimum temperature of 1,600 °F (871 °C) at all times during a carbonization process. [06-096 C.M.R. ch. 115, BPT]
- F. A pyrometer or thermocouple shall be installed and maintained at the location of the incinerator or refractory-lined stack which provides sufficient volume to ensure a flue gas retention time of not less than 0.75 second. [06-096 C.M.R. ch. 115, BPT]
- G. The temperature of the Graph Incinerator shall be monitored continuously and recorded at least once hourly whenever any associated graphitizer is in operation. [06-096 C.M.R. ch. 115, BPT]
- H. Intermat shall keep a log for each graphitizer detailing dates and times of operation. [06-096 C.M.R. ch. 115, BPT]
- I. Visible emissions from the Graph Incinerator shall each not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT]

(22) **JPW Oven**

- A. Emissions from the JPW Oven shall be controlled through the use of the Graph Incinerator when the JPW Oven is in use. [06-096 CMR 115, BACT]
- B. Intermat shall keep a log for the JPW Oven detailing dates and times of operation. [06-096 CMR 115, BACT]

(23) **Heat Cleaning Process**

- A. Emissions from the Heat Cleaning Process (not including the 6 Line Heat Clean System) shall be controlled through the use of the Graph Incinerator when in use. [06-096 CMR 115, BPT]
- B. Intermat shall keep a log for the Heat Cleaning Process detailing dates and times of operation. [06-096 CMR 115, BPT]

**(24) Quartz Process**

- A. Emissions from the Quartz Process vacuum pump exhaust shall be controlled through the use of a coalescent filter. [06-096 CMR 115, BPT]
- B. When using a HIP Vessel as part of the Quartz Process, emissions shall be controlled through use of the HIP Scrubber. [06-096 C.M.R. ch. 115, BPT]
- C. Intermat shall keep a log for the Quartz Process detailing dates and times of operation. [06-096 CMR 115, BPT]

**(25) Parts Washer**

The parts washer at Intermat is subject to *Solvent Cleaners*, 06-096 C.M.R. ch. 130.

- A. Intermat shall keep records of the amount of solvent added to the parts washer. [06-096 C.M.R. ch. 115, BPT]
- B. The following are exempt from the requirements of 06-096 C.M.R. ch. 130 [06-096 C.M.R. ch. 130]:
  - 1. Solvent cleaners using less than two liters (68 oz.) of cleaning solvent with a vapor pressure of 1.00 mmHg, or less, at 20° C (68° F);
  - 2. Wipe cleaning; and,
  - 3. Cold cleaning machines using solvents containing less than or equal to 5% VOC by weight.
- C. The following standards apply to cold cleaning machines that are applicable sources under 06-096 C.M.R. ch. 130.
  - 1. Intermat shall attach a permanent conspicuous label to the unit summarizing the following operational standards:
    - a. Waste solvent shall be collected and stored in closed containers.
    - b. Cleaned parts shall be drained of solvent directly back to the cold cleaning machine by tipping or rotating the part for at least 15 seconds or until dripping ceases, whichever is longer.
    - c. Flushing of parts shall be performed with a solid solvent spray that is a solid fluid stream (not a fine, atomized or shower type spray) at a pressure that does not exceed 10 psig. Flushing shall be performed only within the freeboard area of the cold cleaning machine.
    - d. The cold cleaning machine shall not be exposed to drafts greater than 40 meters per minute when the cover is open.
    - e. Sponges, fabric, wood, leather, paper products and other absorbent materials shall not be cleaned in the parts washer.
    - f. When a pump-agitated solvent bath is used, the agitator shall be operated to

produce no observable splashing of the solvent against the tank walls or the parts being cleaned. Air agitated solvent baths may not be used.

- g. Spills during solvent transfer shall be cleaned immediately. Sorbent material used to clean spills shall then be immediately stored in covered containers.
  - h. Work area fans shall not blow across the opening of the parts washer unit.
  - i. The solvent level shall not exceed the fill line.
2. The remote reservoir cold cleaning machine shall be equipped with a perforated drain with a diameter of not more than six inches.
  3. The parts washer shall be equipped with a cover that shall be closed at all times except during cleaning of parts or the addition or removal of solvent.

[06-096 C.M.R. ch. 130]

**(26) General Process Sources**

Visible emissions from any general process source shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT]

**(27) Fugitive Emissions**

1. Intermat shall not cause emissions of any fugitive dust during any period of construction, reconstruction, or operation without taking reasonable precautions. Such reasonable precautions shall be included in the facility's continuing program of best management practices for suppression of fugitive particulate matter. See 06-096 C.M.R. ch. 101, § 4(C) for a list of potential reasonable precautions.
2. Intermat shall not cause or allow visible emissions within 20 feet of ground level, measured as any level of opacity and not including water vapor, beyond the legal boundary of the property on which such emissions occur. Compliance with this standard shall be determined pursuant to 40 C.F.R. Part 60, Appendix A, Method 22.

[06-096 C.M.R. ch. 101, § 4(C)]



- (28) If the Department determines that any parameter value pertaining to construction and operation of the emissions units, including but not limited to stack size, configuration, flow rate, emission rates, nearby structures, etc., deviates from what was submitted in the application or ambient air quality impact analysis for this air emission license, Intermat may be required to submit additional information. Upon written request from the Department, Intermat shall provide information necessary to demonstrate AAQS will not be exceeded, potentially including submission of an ambient air quality impact analysis or an application to amend this air emission license to resolve any deficiencies and ensure compliance with AAQS. Submission of this information is due within 60 days of the Department's written request unless otherwise stated in the Department's letter.  
[06-096 C.M.R. ch. 115, § 2(O)]

DONE AND DATED IN AUGUSTA, MAINE THIS 23<sup>rd</sup> DAY OF FEBRUARY, 2024.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:  for  
MELANIE LOYZIM, COMMISSIONER

**The term of this license shall be ten (10) years from the signature date above.**

[Note: If a renewal application, determined as complete by the Department, is submitted prior to expiration of this license, then pursuant to Title 5 M.R.S. § 10002, all terms and conditions of the license shall remain in effect until the Department takes final action on the license renewal application.]

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 10/20/2023

Date of application acceptance: 10/23/2023

Date filed with the Board of Environmental Protection:

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

