

**PIONEER PLASTICS CORPORATION)
ANDROSCOGGIN COUNTY)
AUBURN, MAINE)
A-448-77-1-A)**

**DEPARTMENTAL
FINDING OF FACT AND ORDER
AIR EMISSION LICENSE
NEW SOURCE REVIEW #1**

After review of the air emissions license 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., Section 344 and Section 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

Pioneer Plastics Corporation (Pioneer) operates a manufacturing plant in Auburn, Maine. The principal products are Pionite, a decorative laminate used for counter tops and furniture, and low pressure decorative laminates. Pioneer has requested an amendment to their air emissions license, A-448-70-A-A/I. The amendment request is for the installation of a new impregnator and laminate press.

FACILITY	Pioneer Plastics Corporation (Pioneer)
LICENSE NUMBER	A-448-77-1-A
LICENSE TYPE	Chapter 115 Minor Modification
NAICS CODES	325211, 322222, 326130
NATURE OF BUSINESS	Manufacturer of decorative laminate, melamine coated paper, and specialty resins
FACILITY LOCATION	Auburn, Maine
DATE OF INITIAL LICENSE ISSUANCE	April 20, 2004
DATE OF MINOR MODIFICATION ISSUANCE	June 5, 2007
LICENSE EXPIRATION DATE	April 20, 2009

Application Classification

The adding of new equipment at a major source is considered a major modification based on whether or not expected emission increases exceed the “Significant Emission Increase Levels” as given in Maine’s Air Regulations. VOC is the only criteria pollutant that will increase as a result of the proposed installation of the impregnator and press, therefore, only VOC emissions are evaluated for net change. The emission increases was determined as follows:

<u>Pollutant</u>	<u>Net Change (TPY) *</u>	<u>Sig. Level</u>
VOC	39	40

* Calculations can be found in the applicant’s file, in the application dated February 2007.

Based on the above table, this application is being processed as a non-major New Source Review (NSR) modification, under the requirements of Section 4 (B) of Chapter 115 of the Department’s regulations. The application does not involve a relaxation or change in monitoring, testing, reporting or recordkeeping requirements. A separate licensed allowable 39 tons per year VOC emissions limit from the new phenolic impregnator and laminate press will be established per this license modification. The modification addresses new process equipment that will increase criteria pollutant emissions and therefore a BACT analysis is required. A separate Chapter 140 license modification application will be submitted to incorporate the provisions of this NSR amendment into the Part 70 air emissions license within 12-months of equipment start-up.

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 Chapter 100 of the Department’s regulations. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in Chapter 100 of the Department’s regulations. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

B. Amendment Description

Pioneer has requested a minor modification to install a phenolic impregnator (P9) and a laminate press (Press 1). The phenolic impregnator and laminate press are similar to existing units at Pioneer. Specifically, the facility operates three similar phenolic impregnators and six similar laminate presses that are licensed in the facility's Part 70 Air Emissions License, A-448-70-A-A/I and subsequent amendments. The proposed phenolic impregnator and laminate press will be subject to requirements at least as stringent as the requirements applicable to the three existing phenolic impregnators and the six existing laminate presses.

Pioneer plans to install two used pieces that will contribute to the air emissions from the facility. The proposed equipment includes:

- A phenolic impregnator that will produce phenolic impregnated kraft paper to be used as a substrate in finished laminate products or sold to customers as is. VOC emissions from the phenolic impregnator will be captured by a permanent total enclosure and vented to Pioneer's existing thermal oxidizer system, which demonstrated a VOC destruction efficiency of 99.6% through emission testing conducted in April, 2006.
- A laminate press designed to apply pressure and heat to multiple layers of impregnated paper, creating the laminate product. Small amounts of VOC material not previously driven off from the paper will be vented from the laminate press to the atmosphere.
- A feed tank which will store and feed resin for use in the P9 phenolic impregnator.

C. Best Available Control Technology (BACT)

P9 Phenolic Impregnator

Pioneer operates three other phenolic impregnators designated as P1, P4, and P5 which primarily produce phenolic impregnated kraft paper. This paper is used as the substrate in the finished laminate product or shipped as is. VOC emissions are vented from these paper-coating lines (application areas and ovens) by means of a permanent total enclosure (PTE) to the Thermal Oxidizer for destruction. The new phenolic impregnator will be designated as P9 and will be physically located with the other impregnators.

The majority of VOC emissions from the proposed equipment flash off in the coating application area and the drying oven of the phenolic impregnator. While a portion of VOC present in the resins react and remain in the final product, this license will conservatively assume all VOC in the resin is released from the P9 phenolic impregnator and vented to the thermal oxidizer. Potential VOC emissions from the P9 phenolic impregnator could be approximately 75 tons per year based on the maximum resin application rate of 332 gallons per hour, the maximum VOC content rate of 2.59 lb VOC per gallon of resin, and the required thermal oxidizer control efficiency of 98%. Actual VOC emissions from the P9 phenolic impregnator will be around 26 tons per year based on a resin usage of little over one million gallons per year.

To meet the requirements of BACT, Pioneer performed 5 key steps.

1. Identify all control technologies.
2. Eliminate technically infeasible options.
3. Rank remaining control technologies by control effectiveness.
4. Evaluate technically feasible control alternatives (energy, environmental, and economic impacts) if a control technology less effective than the top option is proposed as BACT.
5. Select BACT in consideration of energy, environmental, and economic impacts.

Pioneer evaluated several control technology options including; carbon adsorption, absorbers (scrubbers), condensers, biofilters, and thermal oxidation. A detailed description of the destruction/removal efficiencies for these control technologies can be found in Pioneer's February 2007 application submittal. This license amendment summarizes the following findings.

Biofiltration, catalytic oxidation, and RCO systems were determined to be technically and/or economically infeasible for Pioneer. Thermal Oxidization is both technically and economically feasible because Pioneer currently has the thermal oxidation system in place to control its VOC emissions and thermal oxidation provides the greatest VOC destruction efficiency. Therefore, BACT for the new phenolic impregnator is the permanent total enclosure and the control of VOC emission using the thermal oxidizer operating at a minimum VOC destruction efficiency of 98%.

The overall efficiency of the VOC control system is determined as the product of the capture system efficiency and the control device efficiency. If a source installs a permanent total enclosure (PTE) capture system that meets EPA and DEP specifications (Chapter 126, Appendix A, Procedure T of the Air Regulations) capture efficiency is determined to be 100% and capture efficiency need not be measured.

The source, however, must still measure destruction efficiency using appropriate test methods.

Laminate Press 1

Pioneer plans to install a laminate press designated as Press 1. Small amounts of free organic material that do not flash off in the phenolic impregnator may also be released from the laminate press. After the paper has been impregnated or coated, layers are cured/pressed into their final laminate form by applying heat and pressure. Along with the other six presses Pioneer operates, the papers on Press 1 are pressed and vented to the atmosphere. The pressure and heat supplied to each press promotes cross-linking within the layers to form the laminate and may also release small amounts of free organic material (VOC) that was not driven from the paper in the dryer section of the coating line.

Potential VOC emissions from Press 1 is estimated to be 1.5 tons per year based on a maximum press rate of laminate of 121,000 square feet per day and previously measured VOC emission rate (from a similar existing press) of 6.6×10^{-5} pounds per square foot of laminate. Based on the potential VOC emissions from Press 1 and economic considerations, BACT would not warrant additional pollution control equipment. BACT will require Press 1 to meet 20% opacity on a 6-minute block average basis except for no more than (1) one (6) six minute block average in a 1-hour period.

Feed Tank #67

As part of the project, Pioneer plans to install a feed tank which will store and feed resin for use in the P9 phenolic impregnator. Potential emissions from the tank is estimated to be less than two tons per year. VOC emissions were calculated assuming the maximum annual throughput for Tank #67 being equal to the maximum annual resin usage of the P9 phenolic impregnator. At this throughput of 2,908,320 gallons per year, the potential VOC emissions from working and breathing losses (using EPA TANKS software) is 1.8 tons per year.

Additional pollution control equipment would not be economically justified for BACT from a source emitting less than two tons per year. BACT will require the records of VOC emissions from the tank to be tracked on a monthly basis and included in the 12-month rolling total VOC limit of 39 tons. Also, Pioneer's purchasing of phenolic resins and unloading operations for Feed Tank #67 meet the applicability requirements of the Organic Liquids Distribution (Non-Gasoline) NESHAP (40 CFR Part 63 Subpart EEEE) that was promulgated on February 3, 2004 with a compliance date of February 5, 2008.

D. Applicable Requirements

P9 phenolic impregnator, Laminate Press 1, and Feed Tank #67 will release VOC and HAP emissions, which trigger various state and federal requirements. The BACT for VOC emissions from the new process will supersede the requirements of Reasonably Available Control Technology (RACT) of Chapter 134 of the Department’s regulations. BACT for new processes is inherently more stringent than RACT.

HAPs emitted from the existing coating lines at Pioneer result in those lines being subject to one or two MACT coating standards, depending on the particular web substrate used and the percentage of time that the substrate is used on an individual line. The two standards include the Paper and Other Web Coating NESHAP (POWC MACT; 40 CFR 63 Subpart JJJJ) and the Printing, Coating, and Dyeing of Fabrics and Other Textiles NESHAP (Fabric MACT; 40 CFR 63 Subpart OOOO). Due to the flexibility inherent in the process to coat either a fabric or a paper web on any process line, Pioneer’s Part 70 license incorporates streamlining of the two MACT standards across the coating lines. Condition (22) D of the Air License, A-448-70-A-A/I lists the streamlined requirements, which incorporate the standards expressed in the Fabric MACT to be implemented following the time-lines expressed in the POWC MACT. These streamlined requirements listed in Condition (22) D of Pioneer’s air license also apply to the proposed phenolic impregnator and will be included as a New Source Review condition.

Regulation	Description of Requirement	Basis for Certifying Compliance
EPA 40 CFR 63 Subpart JJJJ	Paper & Other Web (Surface Coating) NESHAP	The facility will continue to comply with the streamlined requirements expressed in 40 CFR Part 63 Subpart OOOO, following the time-lines of 40 CFR Subpart JJJJ.
EPA 40 CFR 63 Subpart OOOO	Printing, Coating, and Dyeing of Fabrics and Other Textiles NESHAP	
DEP Regs. Chapter 123	Paper Coating Regulation	Thermal oxidizer meets VOC control requirements and required monitoring and recordkeeping will be performed.
DEP Regs. Chapter 134	VOC RACT	Operation of Pressroom was determined to meet RACT; approved by EPA April 18, 2000. The new laminate press is subject to BACT.
DEP Regs. Chapter 137	Emissions Statement	Emissions from the proposed equipment will be included with annual emission statement.

DEP License A-448-70-A-A/I Condition (18) C and DEP Regs. Chapters 123 & 126	Vent VOC emissions from phenolic impregnators to thermal oxidizer by means of a certified Permanent Total Enclosure (PTE) Capture System	PTE Capture system for the phenolic impregnator will be inspected semiannually to ensure appropriate specifications are met
DEP License A-448-70-A-A/I Condition (22) B.a and DEP Regs. Chapters 123	Vent VOC emissions from phenolic impregnators to thermal oxidizer by means of a certified Permanent Total Enclosure (PTE) Capture System	Emissions from the proposed phenolic impregnator will be vented to the thermal oxidizer by means of Permanent and Total Enclosure.
DEP License A-448-70-A-A/I Condition (22) B.b and DEP Regs. Chapters 126	Inspections and evaluations of PTE Capture System to ensure appropriate specifications are met	PTE Capture system for the proposed phenolic impregnator will be inspected semiannually to ensure specifications are met.
DEP License A-448-70-A-A/I Condition (22) B.c and (22) B.d. and DEP Regs. Chapters 123	Record keeping requirements	The required records for the proposed phenolic impregnator will be kept for at least 6 years.
DEP License A-448-70-A-A/I Condition (22) D. and 40 CFR 63 Subparts JJJJ and OOOO	Streamlined NESHAP	The proposed phenolic impregnator will comply with Pioneer's streamlined NESHAP requirements.
DEP License A-448-70-A-A/I Condition (23)	Visible Emissions from Pressroom	Visible emissions meet the 20% opacity standard.
40 CFR Part 63 Subpart EEEE	Requirements for Organic Liquid Distribution for Feed Tank #67	Keep records of chemical loading and unloading operations.

E. Streamlining

VOC requirements

Pioneer accepts streamlining for the VOC standards of MEDEP Chapters 123, 126, and 134 of the Department's regulations. The BACT analysis incorporates these requirements and is more stringent. The BACT limits and MACT limits are therefore the only standards included in this license.

F. Recordkeeping Requirements

1. Pioneer will maintain chemical use records for the new phenolic impregnator (P9) and laminate press (Press 1) to meet MACT requirements. By meeting the applicable MACT requirements, Pioneer is in compliance with BACT.
2. Pioneer will calculate VOC emissions on a monthly basis for this process modification in order to demonstrate that the VOC emissions from the operation of the phenolic impregnator (P9), laminate press (Press 1), and feed tank (#67) do

not exceed the limit of 39 tons per year. Pioneer will maintain the cap of 39 tons per year on a 12-month rolling total basis.

3. The following assumptions are applied when calculating emissions:
- 100% volatilization of HAP/VOC in resin from either the phenolic impregnator or laminate press.
 - 100% capture of emissions from by the permanent total enclosures (PTE) around P9, where the phenolic coating will be applied; and
 - 98% destruction of VOC/HAP in the thermal oxidizer (based on previous performance tests).

Recordkeeping will include the following:

1. For P9 phenolic impregnator;
 - a. Monthly records of the amount (pounds) of resin used and VOC content; along with a 98% destruction efficiency of the thermal oxidizer;
 - b. 12-month rolling total of resin used (pounds) and VOC content; Monthly and 12-month rolling total VOC emission calculations using the following formula:

$$\text{VOC}_1 = \frac{(\text{pounds resin} * \text{VOC content}) * 2\%}{2000 \text{ lb/ton}} = \text{tons VOC}$$

2. For Laminate Press 1.
 - a. Monthly records of laminate press rate and 12-month rolling total,
 - b. Testing conducted at Pioneer's other presses determined VOC emissions from the laminate press at the rate of 6.6×10^{-5} pounds per square foot of laminate.
 - c. Monthly and 12-month rolling total VOC emission calculations using the following formula:

$$\text{VOC}_2 = \frac{(\text{laminate press rate} * 6.6 \times 10^{-5} * 365 \text{ days/yr})}{2000 \text{ lb/ton}} = \text{tons VOC}$$

3. For Feed Tank #67:
 - a. Pioneer will calculate VOC emission from the impregnator Feed Tank #67 using material through put data and approved calculation methods (e.g., EPA TANKS software).

- b. VOC emissions will be calculated using the annual resin throughput for Feed Tank #67 for Phenolic Impregnator P9 multiplied by a VOC emission factor from working and breathing losses using EPA TANKS software:

$$\text{VOC}_3 = (\text{annual throughput (tons/year)}) * \text{EPA tanks factor}$$

$$\text{VOC (tons)} = \text{VOC}_1 + \text{VOC}_2 + \text{VOC}_3 \leq 39 \text{ tons VOC per year}$$

III. AMBIENT AIR QUALITY ANALYSIS

According to the Maine Regulations Chapter 115, the level of air quality analyses required for a minor modification shall be determined on a case-by case basis. Based on the information available in the file, and the similarity to existing sources, Maine Ambient Air Quality Standards (MAAQS) will not be violated by this source.

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, or increment standards either alone or in conjunction with emissions from other sources.

The Department hereby grants this minor revision, A-448-77-1-A, subject to the conditions found in Air Emission License A-448-70-A-A/I and subsequent amendments, in addition to the following conditions:

Pioneer is subject to the following New Source Review Chapter 115 conditions.

- (1) The P9 phenolic impregnator is subject to the following:
- a. At all times the P9 phenolic impregnator is operating, Pioneer shall collect VOC emissions by means of a certified Permanent and Total Enclosure (PTE) Capture System and vent to the Thermal Oxidizer with a destruction efficiency of 98% or greater.
[MEDEP Chapter 123 and Chapter 115, BACT]
 - b. The Permanent Total Enclosures (PTE) on P9 will have documented inspections semiannually. These inspection reports will be submitted with the semiannual report required by this permit.

An evaluation will also be conducted of the PTE Capture System to ensure that the system meets the appropriate specifications (Chapter 126 Appendix A, Procedure T of the Maine regulations) every two years in conjunction with the destruction efficiency test on the Thermal Oxidizer. [MEDEP Chapter 123 and Chapter 126]

- c. Pioneer shall keep the following records on site for all coating lines on a daily basis:
 - Coating line number;
 - Time period (hours of operation);
 - Coating identification number;
 - Amount of coating used;
 - Diluent identification number; and
 - Amount of diluent used.

Pioneer shall also record the information in numbers 5 and 6 above for any diluents and solvents used for clean-up operations. [MEDEP Chapter 123]

- d. Copies of all the records specified above shall be kept at the source for a minimum period of six years. [MEDEP Chapter 123]
- e. Pioneer shall submit revised information to the Department whenever it purchases or uses a new coating, diluent or solvent. Information to be provided is to include the parameters specified in the MEDEP Chapter 123 Section 3.5.B.

- (2) The P9 phenolic impregnator is subject to the Paper and Other Web Coating NESHAP 40 C.F.R. Part 63, Subpart JJJJ or the Printing, Coating and Dyeing of Fabrics NESHAP 40 C.F.R. Part 63, Subpart OOOO. The streamlined requirements include the standards expressed in the Printing, Coating and Dyeing of Fabrics NESHAP 40 C.F.R. Part 63, Subpart OOOO and will be implemented following the Paper and Other Web Coating NESHAP 40 C.F.R. Part 63, Subpart JJJJ timelines. The following conditions shall be met:
- a. The facility shall meet the emission limitations, upon start-up, as specified in 40 CFR 63.4300 (a)(1) through (4).
 - b. The facility shall develop a work practice plan in accordance with 40 CFR 63.4293.
 - c. The facility shall develop a Start-up, Shut-down and Malfunction Plan in accordance with 40 CFR 63.4300 (c).
 - d. If a control device is used, the facility shall meet the operating limits specified in 40 CFR 63.4292 and shall conduct a Performance Test as required by 40 CFR 63.4360.
 - e. The facility shall comply with the continuous compliance requirements of 40 CFR 63.4352 and the continuous monitoring requirements of 40 CFR 63.4364.
 - f. The facility shall prepare and submit semiannual compliance reports in accordance with MEDEP Chapter 140.
 - g. Recordkeeping shall include documents specified in 40 CFR 63.4312.
- (3) The loading and unloading operations for phenolic resins in Feed Tank #67 will be subject to the equipment leak components requirements of 40 CFR Part 63 Subpart EEEE and also the recordkeeping and monitoring requirements.
- (4) The laminate press (Press 1) shall be subject to 20% opacity on a 6-minute block average basis except for no more than (1) one (6) six minute block average in a 1-hour period. [MEDEP Chapter 115, BACT]

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- (5) Pioneer shall calculate VOC emissions on a monthly basis for this process modification in order to demonstrate that the VOC emissions from the operation of the phenolic impregnator (P9), laminate press (Press 1), and feed tank #67 do not exceed the limit of 39 tons per year on a 12-month rolling total basis.

DONE AND DATED IN AUGUSTA, MAINE THIS _____ DAY OF _____ 2007.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
DAVID P. LITTELL COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: February 6, 2007

Date of application acceptance: February 20, 2007

Date filed with Board of Environmental Protection: _____

This order prepared by Edwin Cousins, Bureau of Air Quality