

Facility ID: 1667060009 Issuance type: Final State Permit To Operate

This version of facility specific terms and conditions was converted from a database format to an HTML file during an upgrade of the Ohio EPA, Division of Air Pollution Control's permitting software. Every attempt has been made to convert the terms and conditions to look and substantively conform to the permit issued or being drafted in STARS. However, the format of the terms may vary slightly from the original. In addition, although it is not expected, there is a slight possibility that a term and condition may have been inadvertently "left out" of this reproduction during the conversion process. Therefore, if this version is to be used as a starting point in drafting a new version of a permit, it is imperative that the entire set of terms and conditions be reviewed to ensure they substantively mimic the issued permit. The official version of any permit issued final by Ohio EPA is kept in the Agency's Legal section. The Legal section may be contacted at (614) 644-3037.

In addition to the terms and conditions, hyperlinks have been inserted into the document so you may more readily access the section of the document you wish to review.

Finally, the term language under "Part II" and before "A. Applicable Emissions Limitations..." has been added to aid in document conversion, and was not part of the original issued permit.

- [Go to Part II for Emissions Unit L001](#)
- [Go to Part II for Emissions Unit P008](#)
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Facility ID: 1667060009 Emissions Unit ID: L001 Issuance type: Final State Permit To Operate

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**Part II - Special Terms and Conditions**

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
  - (a) None.

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Machine parts cleaning and degreasing	OAC rule 3745-31-05 (PTI 16-1124)	1.92 lbs/hr of VOC 8.41 TPY of VOC

**2. Additional Terms and Conditions**

- (a) The cold cleaner shall be operated with a cover; and if the solvent has a vapor pressure greater than 0.3 pound per square inch absolute measured at one hundred degrees Fahrenheit, or the solvent is heated or agitated, the cover shall be designed and constructed so that it can be easily operated with one hand.  
Equip the cold cleaner with a device for draining the cleaned parts; and if the solvent has a vapor pressure greater than 0.6 pound per square inch absolute, measured at one hundred degrees Fahrenheit, the drainage facility shall be constructed internally so that parts are enclosed under the cover during draining unless an internal type drainage device cannot fit into the cleaning system.  
Install one of the following devices if the solvent vapor pressure is greater than 0.6 pound per square inch absolute measured at one hundred degrees Fahrenheit, or if the solvent is heated above one hundred twenty degrees Fahrenheit:
  - i. Freeboard that gives a freeboard ratio greater than or equal to 0.7;
  - ii. Water cover (solvent must be insoluble in and heavier than water); or
  - iii. Other systems of equivalent control, such as refrigerated chiller or carbon adsorption, approved by the Director.

**B. Operational Restrictions**

1. The cold cleaner shall be operated and maintained in accordance with the following practices to minimize solvent evaporation from the unit:
  - a. Provide a permanent, legible, conspicuous label, summarizing the operating requirements.
  - b. Store waste solvent in covered containers.
  - c. Close the cover whenever parts are not being handled in the cleaner.
  - d. Drain the cleaned parts until dripping ceases.
  - e. If used, supply a solvent spray that is a solid fluid stream (not a fine, atomized, or shower-type spray) at a pressure that does not exceed 10 pounds per square inch gauge.
  - f. Clean only materials that are neither porous nor absorbent.

**C. Monitoring and/or Record Keeping Requirements**

1. The permittee shall maintain records of the following information for each day of operation:
  - a. the types of solvents employed; and
  - b. the vapor pressure of each solvent (pounds per square inch absolute) measured at one hundred degrees Fahrenheit.

**D. Reporting Requirements**

1. None

**E. Testing Requirements**

1. Compliance with the emission limitations in Section A.1 of these terms and conditions shall be determined in accordance with the following method:  
Emission Limitations:  
1.92 lbs/hr of VOC  
8.41 TPY of VOC  
  
Applicable Compliance Method:  
  
Compliance shall be determined by multiplying the volatile organic compound emission factor of 0.08 pound of volatile organic compound per square foot by the area of liquid surface. The emission factor was developed using information provided by General Electric Ravenna Lamp Plant emissions calculation sheet for maintenance parts washers and the AP-42 January, 1995 edition.  
  
To comply with the ton per year limitation, multiply the pound per hour limit by maximum operating hours of 8760 hours per year and divide by 2000 pounds per ton.

**F. Miscellaneous Requirements**

1. This permit allows the use of the coatings and cleanup materials specified by the permittee in the application for PTI number 16-1124. In conjunction with the best available technology requirements of OAC rule 3745-31-05, the butyl acetate, naphtha, methanol, cellosolve acetate, aluminum oxide, mineral spirits, and toluene emission limitation(s) specified in this permit was (were) established in accordance with the Ohio EPA's "Air Toxics Policy" and is (are) based on both the coating and cleanup material formulation data and the design parameters of the emissions unit's exhaust system, as specified in the application. Compliance with the Ohio EPA's "Air Toxics Policy" was demonstrated for each pollutant based on the Screen2 model and a comparison of the predicted 1 hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for each pollutant:  
  
Pollutant: mineral spirits  
TLV (ug/m3): 525  
Maximum Hourly Emission Rate (lbs/hr): 1.63  
Predicted 1 Hour Maximum Ground-Level Concentration at the Fenceline (ug/m3): 53.04  
MAGLC (ug/m3): 12500  
  
Pollutant: toluene  
TLV (ug/m3): 188  
Maximum Hourly Emission Rate (lbs/hr): 0.01  
Predicted 1 Hour Maximum Ground-Level Concentration at the Fenceline (ug/m3): 0.31  
MAGLC (ug/m3): 4476
2. As long as the application of the "Air Toxics Policy" continues to show compliance with the applicable MAGLC, the permittee may implement any of the following changes with prior notification to and approval from the appropriate Ohio EPA District Office or local air agency:
  - a. any changes in the composition of the coatings or cleanup materials, or the use of new coatings or cleanup materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value specified in the above table;
  - b. any change to the emissions unit or its exhaust parameters (e.g., increased emission rate, reduction of exhaust gas flow rate, and decreased stack height) that would result in an exceedance of any MAGLC specified in the above table;
  - c. any change in the composition of the coatings or cleanup materials, or use of new coatings or cleanup materials, that would result in the emission of any of the exempted organic compounds included in the definition of "VOC" [OAC rule 3745-21-01(B)(6)]; and
  - d. any change in the composition of the coatings or cleanup materials, or use of new coatings or cleanup materials, that would result in an increase in emissions of any "Hazardous Air Pollutants" (HAPS) as defined in OAC rule 3745-77-01(V).

For any change to the emissions unit or its method of operation that would either require an increase in the emission limitation(s) established by this permit or would otherwise be considered a "modification" as defined in OAC rule 3745-31-01, the permittee shall obtain a permit to install prior to the change.

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Facility ID: 1667060009 Emissions Unit ID: P008 Issuance type: Final State Permit To Operate

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**Part II - Special Terms and Conditions**

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1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
  - (a) None.

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
process equipment for the production of high pressure sodium lamps	OAC rule 3745-31-05 (PTI 16-1106)	0.017 lb/hr of particulate emissions 0.03 lb/hr of ozone 0.06 lb/hr of lead 0.0012 lb/hr of sulfur dioxide 0.332 lb/hr of nitrogen oxides 0.066 lb/hr of carbon monoxide 1.851 lbs/hr of total volatile organic compounds 0.9 lb/hr of ethylene glycol 0.6 lb/hr of denatured ethyl alcohol
	OAC rule 3745-17-11	See A.2.a below.
	OAC rule 3745-21-08(B)	See B.1 below.
	OAC Chapter 3745-71	See A.2.a below.

2. **Additional Terms and Conditions**
  - (a) The emission limitation based on this rule is less stringent than the emission limitation established by best available technology.

**B. Operational Restrictions**

1. Except as otherwise provided in this rule all new stationary carbon monoxide emission sources shall minimize carbon monoxide emissions by use of the best available control techniques and operating practices in accordance with best current technology.

**C. Monitoring and/or Record Keeping Requirements**

1. None

**D. Reporting Requirements**

1. None

**E. Testing Requirements**

1. Compliance with the emission limitations in Section A.1 of these terms and conditions shall be determined in accordance with the following methods:  
Emission Limitation:

0.017 lb/hr of particulate emissions

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly particulate emissions of 0.00554 pound from the bulb sealing process by the number of machines.

The hourly particulate emissions rate from bulb sealing is calculated by multiplying the particulate emission factor of 5 pounds of particulate emissions per million cubic feet of natural gas consumed by the amount of natural gas consumed per hour. The particulate emission factor and the quantity of natural gas consumed (9.30E+06 cubic feet) were provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

Emission Limitation:

0.03 lb/hr of ozone

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly ozone emissions of 0.01 pound from the mount assembly process by the number of machines.

The hourly ozone emissions rate from the mount assembly was assumed by the permit writer of PTI 16-1106, based on information provided by the General Electric Ravenna Lamp Plant in the application, which states that

emissions from these machines are limited to very small quantities of ozone generated by electrical arcing.

Emission Limitation:

0.06 lb/hr of lead

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly lead emissions of 0.01 pound from the bulb sealing process by the number of machines, and by multiplying hourly lead emissions of 0.01 pound from the lamp basing process by the number of lamp basing wheels.

The hourly lead emissions rate from bulb sealing was assumed by the permit writer of PTI 16-1106, based on information provided by the General Electric Ravenna Lamp Plant in the application, which states that small quantities of lead may be emitted from the glass used in this process during sealing.

The hourly lead emissions rate from lamp basing wheels was assumed by the permit writer of PTI 16-1106, based on information provided by the General Electric Ravenna Lamp Plant in the application, which states that the soldering operation emits metal fumes which contain some amount of lead.

Emission Limitation:

0.0012 lb/hr of sulfur dioxide

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly sulfur dioxide emissions of 0.00066 pound from the bulb sealing process by the number of machines.

The hourly sulfur dioxide emissions rate from bulb sealing is calculated by multiplying the sulfur dioxide emission factor of 0.6 pound of sulfur dioxide per million cubic feet of natural gas consumed by the amount of natural gas consumed per hour. The sulfur dioxide emission factor and the quantity of natural gas consumed (9.30E+06 cubic feet) were provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

Emission Limitation:

0.332 lb/hr of nitrogen oxides

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly nitrogen oxides emissions of 0.11071 pound from the bulb sealing process by the number of machines.

The hourly nitrogen oxides emissions rate from bulb sealing is calculated by multiplying the nitrogen oxides emission factor of 100 pounds of nitrogen oxides per million cubic feet of natural gas consumed by the amount of natural gas consumed per hour. The nitrogen oxides emission factor and the quantity of natural gas consumed (9.30E+06 cubic feet) were provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

Emission Limitation:

0.066 lb/hr of carbon monoxide

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly carbon monoxide emissions of 0.02214 pound from the bulb sealing process by the number of machines.

The hourly carbon monoxide emissions rate from bulb sealing is calculated by multiplying the carbon monoxide emission factor of 20 pounds of carbon monoxide per million cubic feet of natural gas consumed by the amount of natural gas consumed per hour. The carbon monoxide emission factor and the quantity of natural gas consumed (9.30E+06 cubic feet) were provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

Emission Limitation:

1.851 lbs/hr of total volatile organic compound

Applicable Compliance Method:

Compliance shall be determined by adding the hourly volatile organic compound emissions from the bulb sealing and the lamp basing operations to the hourly emissions of ethylene glycol and denatured ethyl alcohol.

For the bulb sealing process, compliance shall be determined by multiplying hourly volatile organic compound emissions of 0.00587 pound by the number of machines.

The hourly volatile organic compound emissions rate from bulb sealing is calculated by multiplying the volatile organic compound emission factor of 5.3 pounds of volatile organic compound per million cubic feet of natural gas consumed by the amount of natural gas consumed per hour. The volatile organic compound emission factor and the quantity of natural gas consumed (9.30E+06 cubic feet) were provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

For the lamp basing process, compliance shall be determined by multiplying hourly volatile organic compound emissions of 0.111 pound by the number of lamp basing wheels.

The hourly volatile organic compound emissions rate from lamp basing is calculated by adding the volatile organic compound emission factor of 0.045 pound of hexylene glycol to the volatile organic compound emission factor of 0.066 pound of linseed oil, both of which were provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

For hourly emissions of ethylene glycol, see E.1.h below.

For hourly emissions of denatured ethyl alcohol, see E.1.i below.  
Emission Limitation:

0.9 lb/hr of ethylene glycol

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly ethylene glycol emissions of 0.3 pound from the lamp basing process by the number of lamp basing wheels.

The hourly emissions rate of ethylene glycol from lamp basing was provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

Emission Limitation:

0.6 lb/hr of denatured ethyl alcohol

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly denatured ethyl alcohol emissions of 0.2 pound from the lamp basing process by the number of lamp basing wheels.

The hourly emissions rate of denatured ethyl alcohol from lamp basing was provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

**F. Miscellaneous Requirements**

- 1. None

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**Facility ID: 1667060009 Emissions Unit ID: P009 Issuance type: Final State Permit To Operate**

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**Part II - Special Terms and Conditions**

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- 1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (a) None.
- 2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
  - (a) None.

**A. Applicable Emissions Limitations and/or Control Requirements**

- 1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
process equipment for the production of mercury/multi-vapor discharge lamps	OAC rule 3745-31-05 (PTI 16-1106)	0.137 lb/hr of particulate emissions 0.03 lb/hr of ozone 0.06 lb/hr of lead 0.0012 lb/hr of sulfur dioxide 0.332 lb/hr of nitrogen oxides 0.066 lb/hr of carbon monoxide 1.851 lbs/hr of total volatile organic compounds 0.9 lb/hr of ethylene glycol 0.6 lb/hr of denatured ethyl alcohol
	OAC rule 3745-17-11	See A.2.a below.
	OAC rule 3745-21-08(B)	See B.1 below.
	OAC rule 3745-71	See A.2.a below.

**2. Additional Terms and Conditions**

- (a) The emission limitation based on this rule is less stringent than the emission limitation established by best available technology.

**B. Operational Restrictions**

- 1. Except as otherwise provided in this rule all new stationary carbon monoxide emission sources shall minimize carbon monoxide emissions by use of the best available control techniques and operating practices in

accordance with best current technology.

C. **Monitoring and/or Record Keeping Requirements**

1. None

D. **Reporting Requirements**

1. None

E. **Testing Requirements**

1. Compliance with the emission limitations in Section A.1 of these terms and conditions shall be determined in accordance with the following methods:

Emission Limitation:

0.137 lb/hr of particulate emissions

Applicable Compliance Method:

Compliance shall be determined by adding the hourly particulate emissions from the bulb sealing operation to the hourly particulate emissions from the electrostatic coating operation.

For the bulb sealing process, compliance shall be determined by multiplying hourly particulate emissions of 0.00554 pound by the number of machines.

The hourly particulate emissions rate from bulb sealing is calculated by multiplying the particulate emission factor of 5 pounds of particulate emissions per million cubic feet of natural gas consumed by the amount of natural gas consumed per hour. The particulate emission factor and the quantity of natural gas consumed (9.30E+06 cubic feet) were provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

For the electrostatic coating process, the hourly particulate emissions rate was provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

Emission Limitation:

0.03 lb/hr of ozone

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly ozone emissions of 0.01 pound from the mount assembly process by the number of machines.

The hourly ozone emissions rate from the mount assembly was assumed by the permit writer of PTI 16-1106, based on information provided by the General Electric Ravenna Lamp Plant in the application, which states that emissions from these machines are limited to very small quantities of ozone generated by electrical arcing.

Emission Limitation:

0.06 lb/hr of lead

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly lead emissions of 0.01 pound from the bulb sealing process by the number of machines, and by multiplying hourly lead emissions of 0.01 pound from the lamp basing process by the number of lamp basing wheels.

The hourly lead emissions rate from bulb sealing was assumed by the permit writer of PTI 16-1106, based on information provided by the General Electric Ravenna Lamp Plant in the application, which states that small quantities of lead may be emitted from the glass used in this process during sealing.

The hourly lead emissions rate from lamp basing wheels was assumed by the permit writer of PTI 16-1106, based on information provided by the General Electric Ravenna Lamp Plant in the application, which states that the soldering operation emits metal fumes which contain some amount of lead.

Emission Limitation:

0.0012 lb/hr of sulfur dioxide

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly sulfur dioxide emissions of 0.00066 pound from the bulb sealing process by the number of machines.

The hourly sulfur dioxide emissions rate from bulb sealing is calculated by multiplying the sulfur dioxide emission factor of 0.6 pound of sulfur dioxide per million cubic feet of natural gas consumed by the amount of natural gas consumed per hour. The sulfur dioxide emission factor and the quantity of natural gas consumed (9.30E+06 cubic feet) were provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

Emission Limitation:

0.332 lb/hr of nitrogen oxides

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly nitrogen oxides emissions of 0.11071 pound from the bulb sealing process by the number of machines.

The hourly nitrogen oxides emissions rate from bulb sealing is calculated by multiplying the nitrogen oxides emission factor of 100 pounds of nitrogen oxides per million cubic feet of natural gas consumed by the amount

of natural gas consumed per hour. The nitrogen oxides emission factor and the quantity of natural gas consumed (9.30E+06 cubic feet) were provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

Emission Limitation:

0.066 lb/hr of carbon monoxide

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly carbon monoxide emissions of 0.02214 pound from the bulb sealing process by the number of machines.

The hourly carbon monoxide emissions rate from bulb sealing is calculated by multiplying the carbon monoxide emission factor of 20 pounds of carbon monoxide per million cubic feet of natural gas consumed by the amount of natural gas consumed per hour. The carbon monoxide emission factor and the quantity of natural gas consumed (9.30E+06 cubic feet) were provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

Emission Limitation:

1.851 lbs/hr of total volatile organic compound

Applicable Compliance Method:

Compliance shall be determined by adding the hourly volatile organic compound emissions from the bulb sealing and the lamp basing operations to the hourly emissions of ethylene glycol and denatured ethyl alcohol.

For the bulb sealing process, compliance shall be determined by multiplying hourly volatile organic compound emissions of 0.00587 pound by the number of machines.

The hourly volatile organic compound emissions rate from bulb sealing is calculated by multiplying the volatile organic compound emission factor of 5.3 pounds of volatile organic compound per million cubic feet of natural gas consumed by the amount of natural gas consumed per hour. The volatile organic compound emission factor and the quantity of natural gas consumed (9.30E+06 cubic feet) were provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

For the lamp basing process, compliance shall be determined by multiplying hourly volatile organic compound emissions of 0.111 pound by the number of lamp basing wheels.

The hourly volatile organic compound emissions rate from lamp basing is calculated by adding the volatile organic compound emission factor of 0.045 pound of hexlene glycol to the volatile organic compound emission factor of 0.066 pound of linseed oil, both of which were provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

For hourly emissions of ethylene glycol, see E.1.h below.

For hourly emissions of denatured ethyl alcohol, see E.1.i below.

Emission Limitation:

0.9 lb/hr of ethylene glycol

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly ethylene glycol emissions of 0.3 pound from the lamp basing process by the number of lamp basing wheels.

The hourly emissions rate of ethylene glycol from lamp basing was provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

Emission Limitation:

0.6 lb/hr of denatured ethyl alcohol

Applicable Compliance Method:

Compliance shall be determined by multiplying hourly denatured ethyl alcohol emissions of 0.2 pound from the lamp basing process by the number of lamp basing wheels.

The hourly emissions rate of denatured ethyl alcohol from lamp basing was provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106.

**F. Miscellaneous Requirements**

1. None

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**Facility ID: 1667060009 Emissions Unit ID: P017 Issuance type: Final State Permit To Operate**

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1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (a) None.
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  - (a) None.

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Rotary Pinch Arc Tube Line - assembly of quartz tubing, electrodes, and fill gases into an arc tube	OAC rule 3745-31-05 (PTI 16-02300)	0.64 lb/hr and 2.81 TPY of isopropyl alcohol
	OAC rule 3745-21-07(G)(2)	See A.2.a below.

**2. Additional Terms and Conditions**

- (a) The emission limitation based on this rule is less stringent than the emission limitation established by best available technology.

**B. Operational Restrictions**

1. None

**C. Monitoring and/or Record Keeping Requirements**

1. None

**D. Reporting Requirements**

1. None

**E. Testing Requirements**

1. Compliance with the emission limitations in Section A.1 of these terms and conditions shall be determined in accordance with the following methods:  
Emission Limitation:

0.64 lb/hr of isopropyl alcohol

Applicable Compliance Method:

Compliance shall be determined based on information provided by the General Electric Ravenna Lamp Plant in the application for PTI 16-1106, in which the alcohol emission rate is estimated. The emission limit has been increased proportionally to the rate of increase in production indicated by the application for PTI 16-02300. The applicable change is an increase in allowable emissions due to an increase in production from a maximum hourly rate of 320 arc tubes per hour to 500 arc tubes per hour. The short term allowable emission rate of 0.41 pounds of isopropyl alcohol per hour from PTI 16-1106 is multiplied by the factor of 500/320 to obtain the new short term allowable emission rate of 0.64 pounds per hour.

Emission Limitation:

2.81 TPY of isopropyl alcohol

Applicable Compliance Method:

To calculate the ton per year limit, multiply the maximum hourly emission limit times 8760 hours per year, then divide by 2000.

**F. Miscellaneous Requirements**

1. None

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Facility ID: 1667060009 Emissions Unit ID: P018 Issuance type: Final State Permit To Operate

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- (a) None.
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**A. Applicable Emissions Limitations and/or Control Requirements**

- 1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Multi-vapor lamp finishing line for high pressure discharge lamps, controlled with a fabric filter	OAC rule 3745-31-05 (PTI 16-137997)	0.15 lb/hr of particulates (PM) 0.01 lb/hr of lead* 0.01 lb/hr of ozone* 0.01 lb/hr of SOx* 0.25 lb/hr of NOx* 0.05 lb/hr of CO* 0.50 lb/hr of total organic material 0.30 lb/hr of ethylene glycol 0.20 lb/hr of denatured ethyl alcohol
	OAC rule 3745-17-07	* See A.2.a and B.1 Visible PM emissions from any stack serving this emissions unit shall not exceed 20 percent opacity, as a 6-minute average, except as provided by rule
	OAC rule 3745-17-11	Equal to or less stringent than the above requirements

**2. Additional Terms and Conditions**

- (a) These limitations were established during the determination of best available technology and reflect potential to emit. Therefore, no record keeping, reporting, or testing is necessary to show compliance with these limitations.

**B. Operational Restrictions**

- 1. The permittee shall only employ natural gas as fuel in this emissions unit.
- 2. The pressure drop across the fabric filter shall be maintained within the range of 2.0 to 6.0 inches of water column while the emissions unit is in operation.

**C. Monitoring and/or Record Keeping Requirements**

- 1. The permittee shall properly install, operate, and maintain equipment to monitor the pressure drop across the fabric filter while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across the fabric filter on a daily basis.

**D. Reporting Requirements**

- 1. The permittee shall submit quarterly pressure drop deviation (excursion) reports that identify all periods of time during which the pressure drop across the fabric filter did not comply with the allowable range specified above. The deviation reports shall be submitted in accordance with the requirements specified in Part I - General Term and Condition 3.

**E. Testing Requirements**

- 1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:  
Emission Limitation -  
0.15 lb/hr PM

Applicable Compliance Method -  
Compliance shall be calculated in accordance with the following equation:

$$E = (1 - 0.90) \times [(3.0 \text{ lb/MMcu.ft.} \times 0.0045 \text{ MMcu.ft./hr}) + 0.6 \text{ lb/hr}]$$

where:

E = mass emissions rate, PM, in lbs/hr;  
0.90 = the minimum control efficiency of the fabric filter;  
3.0 lb/MMcu.ft. = AP-42 emission factor for natural gas combustion;  
0.0045 MMcu.ft. = maximum hourly natural gas consumption; and  
0.6 = maximum uncontrolled hourly emissions of PM from the electrostatic coating operation based on material balance.

If required, compliance shall be demonstrated through emissions testing in accordance with OAC rule 3745-17-03(B)(10), using test methods 1-5 of 40 CFR Part 60, Appendix A.

Emission Limitations -  
0.50 lb/hr of total organic material  
0.30 lb/hr of ethylene glycol  
0.20 lb/hr of denatured ethyl alcohol

Applicable Compliance Method -

Compliance shall be calculated in accordance with the following equation:

$$E = [(0.3 \text{ lb/hr ethylene glycol}) + (0.2 \text{ lb/hr ethyl alcohol})]$$

where:

E = mass emissions rate of total organic compounds, in lbs/hr;  
 0.3 lb/hr = maximum uncontrolled hourly emissions of ethylene glycol; and  
 0.2 lb/hr = maximum uncontrolled hourly emissions of denatured ethyl alcohol.

If required, compliance shall be demonstrated through emissions testing, using test methods 1-4 and 18 of 40 CFR Part 60, Appendix A.

Emission Limitation -  
 20 percent opacity as a 6-minute average

Applicable Compliance Method -

If required, compliance shall be based upon visible emissions observations in accordance with OAC rule 3745-17-03(B)(3), using test method 9 of 40 CFR part 60, Appendix A.

Emission Limitations -

0.01 lb/hr of SO<sub>x</sub>  
 0.25 lb/hr of NO<sub>x</sub>  
 0.05 lb/hr of CO

Applicable Compliance Method -

Compliance may be calculated using emission factors for natural gas combustion from Table 1.4-1 of AP-42, Fifth Edition, and a maximum natural gas consumption rate of 0.0045 MMcu.ft./hr.

**F. Miscellaneous Requirements**

1. None

\*\*\*THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION\*\*\*

**Facility ID: 1667060009 Emissions Unit ID: R001 Issuance type: Final State Permit To Operate**

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**Part II - Special Terms and Conditions**

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
  - (a) None.

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
HID bulb coating	OAC rule 3745-31-05 (PTI 16-1124)	4.41 lbs/hr of VOC 19.29 TPY of VOC
	OAC rule 3745-21-07(G)	See A.2.a below.

2. **Additional Terms and Conditions**
  - (a) The permittee shall not employ any photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5), in this emissions unit.

**B. Operational Restrictions**

1. The application of cleanup material shall be limited to 8 hours per day.

**C. Monitoring and/or Record Keeping Requirements**

1. None

**D. Reporting Requirements**

1. None

**E. Testing Requirements**

1. Compliance with the emission limitations in Section A.1 of these terms and conditions shall be determined in accordance with the following method:  
 Emission Limitation:

4.41 lbs/hr of VOC  
19.29 TPY of VOC

Applicable Compliance Method:

Compliance shall be determined by adding hourly emissions from coating of 3.49 pounds to the hourly emissions from clean-up materials of 0.92 pound.

The hourly emission rate from the H.I.D. bulb coating process is calculated by multiplying the volatile organic compound emission factor of 3.99 pounds of volatile organic compound per gallon of coating material by the maximum hourly coating material usage rate. The emission factor was developed using material safety data sheet values provided by General Electric Ravenna Lamp Plant.

The hourly emission rate from clean-up materials is calculated by multiplying the volatile organic compound emission factor of 7.33 pounds of volatile organic compound per gallon of clean-up material by the amount of clean-up material used and not collected per day, divided by the number of hours of operation per day. The emission factor was developed using material safety data sheet values provided by General Electric Ravenna Lamp Plant.

To comply with the ton per year limitation, multiply the pound per hour limit by maximum operating hours of 8760 hours per year and divide by 2000 pounds per ton.

**F. Miscellaneous Requirements**

1. This permit allows the use of the coatings and cleanup materials specified by the permittee in the application for PTI number 16-1124. In conjunction with the best available technology requirements of OAC rule 3745-31-05, the butyl acetate, naphtha, methanol, cellosolve acetate, aluminum oxide, mineral spirits, and toluene emission limitation(s) specified in this permit was (were) established in accordance with the Ohio EPA's "Air Toxics Policy" and is (are) based on both the coating and cleanup material formulation data and the design parameters of the emissions unit's exhaust system, as specified in the application. Compliance with the Ohio EPA's "Air Toxics Policy" was demonstrated for each pollutant based on the Screen2 model and a comparison of the predicted 1 hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for each pollutant:

Pollutant: butyl acetate  
TLV (ug/m3): 950  
Maximum Hourly Emission Rate (lbs/hr): 2.47  
Predicted 1 Hour Maximum Ground-Level Concentration at the Fenceline (ug/m3): 848.2  
MAGLC (ug/m3): 22619

Pollutant: naphtha  
TLV (ug/m3): 1350  
Maximum Hourly Emission Rate (lbs/hr): 0.99  
Predicted 1 Hour Maximum Ground-Level Concentration at the Fenceline (ug/m3): 97.64  
MAGLC (ug/m3): 32143

2. As long as the application of the "Air Toxics Policy" continues to show compliance with the applicable MAGLC, the permittee may implement any of the following changes with prior notification to and approval from the appropriate Ohio EPA District Office or local air agency:
  - a. any changes in the composition of the coatings or cleanup materials, or the use of new coatings or cleanup materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value specified in the above table;
  - b. any change to the emissions unit or its exhaust parameters (e.g., increased emission rate, reduction of exhaust gas flow rate, and decreased stack height) that would result in an exceedance of any MAGLC specified in the above table;
  - c. any change in the composition of the coatings or cleanup materials, or use of new coatings or cleanup materials, that would result in the emission of any of the exempted organic compounds included in the definition of "VOC" [OAC rule 3745-21-01(B)(6)]; and
  - d. any change in the composition of the coatings or cleanup materials, or use of new coatings or cleanup materials, that would result in an increase in emissions of any "Hazardous Air Pollutants" (HAPS) as defined in OAC rule 3745-77-01(V).

For any change to the emissions unit or its method of operation that would either require an increase in the emission limitation(s) established by this permit or would otherwise be considered a "modification" as defined in OAC rule 3745-31-01, the permittee shall obtain a permit to install prior to the change.

\*\*\*THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION\*\*\*

Facility ID: 1667060009 Emissions Unit ID: R002 Issuance type: Final State Permit To Operate

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**Part II - Special Terms and Conditions**

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
  - (a) None.

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Multivapor dipcoating	OAC rule 3745-31-05 (PTI 16-1124)	4.51 lbs/hr of VOC 19.75 TPY of VOC 0.08 lb/hr of ammonia 0.35 TPY of ammonia
	OAC rule 3745-21-07(G)	See A.2.a below.

2. **Additional Terms and Conditions**
  - (a) The permittee shall not employ any photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5), in this emissions unit.

**B. Operational Restrictions**

1. None

**C. Monitoring and/or Record Keeping Requirements**

1. None

**D. Reporting Requirements**

1. None

**E. Testing Requirements**

1. Compliance with the emission limitations in Section A.1 of these terms and conditions shall be determined in accordance with the following methods:  
Emission Limitation:

4.51 lbs/hr of VOC  
19.75 TPY of VOC

Applicable Compliance Method:

Compliance shall be determined by adding hourly emissions from the pre coat of 4.05 pounds to the hourly emissions from the final coat of 0.46 pound.

The hourly emission rate from the pre coat process is calculated by multiplying the volatile organic compound emission factor of 6.53 pounds of volatile organic compound per gallon of pre coat material by the maximum hourly pre coat usage rate. The emission factor was developed using information provided by General Electric Ravenna Lamp Plant.

The hourly emission rate from the final coat process is calculated by multiplying the volatile organic compound emission factor of 0.92 pound of volatile organic compound per gallon of final coat material by the maximum hourly final coat usage rate. The emission factor was developed using information provided by General Electric Ravenna Lamp Plant.

To comply with the ton per year limitation, multiply the pound per hour limit by maximum operating hours of 8760 hours per year and divide by 2000 pounds per ton.

Emission Limitation:

0.08 lb/hr of ammonia  
0.35 TPY of ammonia

Applicable Compliance Method:

Compliance shall be determined by multiplying the ammonia emission factor of 0.16 pound of ammonia per gallon of final coat material by the maximum hourly final coat usage rate. The emission factor was developed using information provided by General Electric Ravenna Lamp Plant.

To comply with the ton per year limitation, multiply the pound per hour limit by maximum operating hours of 8760 hours per year and divide by 2000 pounds per ton.

**F. Miscellaneous Requirements**

1. This permit allows the use of the coatings and cleanup materials specified by the permittee in the application for PTI number 16-1124. In conjunction with the best available technology requirements of OAC rule 3745-31-05, the butyl acetate, naphtha, methanol, cellosolve acetate, aluminum oxide, mineral spirits, and toluene emission limitation(s) specified in this permit was (were) established in accordance with the Ohio EPA's "Air Toxics Policy" and is (are) based on both the coating and cleanup material formulation data and the design parameters

of the emissions unit's exhaust system, as specified in the application. Compliance with the Ohio EPA's "Air Toxics Policy" was demonstrated for each pollutant based on the Screen2 model and a comparison of the predicted 1 hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for each pollutant:

Pollutant: methanol  
TLV (ug/m3): 262  
Maximum Hourly Emission Rate (lbs/hr): 3.91  
Predicted 1 Hour Maximum Ground-Level Concentration at the Fenceline (ug/m3): 25.33  
MAGLC (ug/m3): 6238

Pollutant: cellosolve acetate (2-ethoxyethyl acetate)  
TLV (ug/m3): 27  
Maximum Hourly Emission Rate (lbs/hr): 0.13  
Predicted 1 Hour Maximum Ground-Level Concentration at the Fenceline (ug/m3): 0.86  
MAGLC (ug/m3): 642.8

Pollutant: aluminum oxide  
TLV (ug/m3): 10  
Maximum Hourly Emission Rate (lbs/hr): 0.59  
Predicted 1 Hour Maximum Ground-Level Concentration at the Fenceline (ug/m3): 3.81  
MAGLC (ug/m3): 238.09

2. As long as the application of the "Air Toxics Policy" continues to show compliance with the applicable MAGLC, the permittee may implement any of the following changes with prior notification to and approval from the appropriate Ohio EPA District Office or local air agency:

- a. any changes in the composition of the coatings or cleanup materials, or the use of new coatings or cleanup materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value specified in the above table;

- b. any change to the emissions unit or its exhaust parameters (e.g., increased emission rate, reduction of exhaust gas flow rate, and decreased stack height) that would result in an exceedance of any MAGLC specified in the above table;

- c. any change in the composition of the coatings or cleanup materials, or use of new coatings or cleanup materials, that would result in the emission of any of the exempted organic compounds included in the definition of "VOC" [OAC rule 3745-21-01(B)(6)]; and

- d. any change in the composition of the coatings or cleanup materials, or use of new coatings or cleanup materials, that would result in an increase in emissions of any "Hazardous Air Pollutants" (HAPS) as defined in OAC rule 3745-77-01(V).

For any change to the emissions unit or its method of operation that would either require an increase in the emission limitation(s) established by this permit or would otherwise be considered a "modification" as defined in OAC rule 3745-31-01, the permittee shall obtain a permit to install prior to the change.