

1 December 2006

Mr. Terrance McCormack
EHS Manager
Umicore Indium Products
50 Sims Avenue
Providence, RI 02909

Dear Mr. McCormack:

The Department of Environmental Management, Office of Air Resources has reviewed and approved your application for the operation of air pollution control equipment at your 50 Sims Avenue, Providence facility.

Enclosed is a minor source permit issued pursuant to our review of your application (Approval No. 1950).

During the course of our review of your application, it was noted that the Mech-Chem scrubber located at 50 Sims Avenue was installed in August 2002. Umicore Indium Products failed to obtain a preconstruction permit prior to the installation of this equipment as required by RI Air Pollution Control Regulation No. 9.

The issuance of this minor source permit will now bring Umicore Indium Products into compliance with the requirement to obtain a preconstruction permit. The issuance of this permit does not limit or otherwise preclude the RI DEM from pursuing enforcement actions to address the failure to obtain a preconstruction permit prior to the installation of the equipment. If there are any questions concerning this permit, please contact me at 222-2808, extension 7011.

Sincerely,

Douglas L. McVay
Associate Supervising Engineer
Office of Air Resources

cc: Providence Building Official

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES

MINOR SOURCE PERMIT

UMICORE INDIUM PRODCUTS

APPROVAL NO. 1950

Pursuant to the provisions of Air Pollution Control Regulation No. 9, this minor source permit is issued to:

Umicore Indium Products

For the following:

Operation of a Mech-Chem packed tower wet scrubber to treat emissions from storage tanks and reaction vessels used in indium processing operations prior to discharge to the atmosphere. This scrubber replaced an existing Ambi Inc., Model LPT-025 extended packed bed scrubber (Approval No. 1322).

Located at: 50 Sims Avenue, Providence

This permit shall be effective from the date of its issuance and shall remain in effect until revoked by or surrendered to the Department. This permit does not relieve *Umicore Indium Products* from compliance with applicable state and federal air pollution control rules and regulations. The design, construction and operation of this equipment shall be subject to the attached permit conditions and emission limitations.

**Stephen Majkut, Chief
Office of Air Resources**

Date of issuance

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES

Permit Conditions and Emission Limitations

UMICORE INDIUM PRODUCTS

APPROVAL NO. 1950

A. Emission Limitations

1. Hydrogen Chloride (HCl)

Hydrogen chloride emissions generated from indium processing operations shall be reduced by 99% or greater before discharge to the atmosphere.

2. Nitrogen Oxides (NOx)

NOx emissions generated from indium processing operations shall be reduced by 40% or greater before discharge to the atmosphere.

3. There shall be no visible emissions from the scrubber exhaust. Where the presence of uncombined water is the only reason for failure to meet this requirement, such failure shall not be a violation of this requirement.

B. Operating Requirements

1. HCl and NOx emissions generated from indium processing operations shall be captured, contained and routed to the scrubber for treatment prior to discharge into the atmosphere.

C. Monitoring

1. The pH of the scrubbing liquid for the scrubber shall be monitored continuously and checked a minimum of once per shift and the date, time, and measurement shall be recorded.

2. The ORP of the scrubbing liquid for the scrubber shall be monitored continuously and checked a minimum of once per shift and the date, time, and measurement shall be recorded.

3. The monitoring devices used for the measurement of the pH and ORP shall be calibrated periodically according to the manufacturer's specifications.

D. Recordkeeping and Reporting

1. The owner/operator shall, on a monthly basis, determine the total quantity of HCl and NO_x discharged to the atmosphere from the entire facility. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.
2. The owner/operator shall maintain records of the pH and ORP measurements for the scrubber.
3. The owner/operator shall notify the Office of Air Resources in writing of any planned physical or operational change to any equipment that would:
 - a. Change the representation of the facility in the application.
 - b. Alter the applicability of any state or federal air pollution rules or regulations.
 - c. Result in the violation of any terms or conditions of this permit.
 - d. Qualify as a modification under APC Regulation No. 9.

Such notification shall include:

- Information describing the nature of the change.
- Information describing the effect of the change on the emission of any air contaminant.
- The scheduled completion date of the planned change.

Any such change shall be consistent with the appropriate regulation and have the prior approval of the Director.

4. The owner/operator shall notify the Office of Air Resources of any anticipated noncompliance with the terms of this permit or any other applicable air pollution control rules and regulations.
5. The owner/operator shall notify the Office of Air Resources, in writing, of any noncompliance with the terms of this permit within 30 calendar days of becoming aware of such occurrence and supply the Director with the following information:
 - a. The name and location of the facility;
 - b. The subject source(s) that caused the noncompliance with the permit term;
 - c. The time and date of first observation of the incident of noncompliance;

- d. The cause and expected duration of the incident of noncompliance;
 - e. The estimated rate of emissions (expressed in lbs/hr or lbs/day) during the incident and the operating data and calculations used in estimating the emission rate.
 - f. The proposed corrective actions and schedule to correct the conditions causing the incidence of noncompliance.
6. All records required as a condition of this approval must be made available to the Office of Air Resources or its representative upon request. These records must be maintained for a minimum of five years after the date of each record.

E. Malfunctions

1. Malfunction means a sudden and unavoidable breakdown of process or control equipment. In the case of a malfunction of any air pollution control system, all reasonable measures shall be taken to assure resumption of the designed control efficiency as soon as possible. In the event that the malfunction of an air pollution control system is expected or may reasonably be expected to continue for longer than 24 hours and if the owner/operator wishes to operate the source on which it is installed at any time beyond that period, the Director shall be petitioned for a variance under Section 23-23-15 of the General Laws of Rhode Island, as amended. Such petition shall include, but is not limited to, the following:
 - a. Identification of the specific air pollution control system and source on which it is installed;
 - b. The expected period of time that the air pollution control system will be malfunctioning or out of service;
 - c. The nature and quantity of air contaminants likely to be emitted during said period;
 - d. Measures that will be taken to minimize the length of said period;
 - e. The reasons that it would be impossible or impractical to cease the source operation during said period.
2. The owner/operator may seek to establish that a malfunction of any air pollution control system that would result in noncompliance with any of the terms of this permit or any other applicable air pollution control rules and regulations was due to unavoidable increases in emissions attributable to the malfunction. To do so, the owner/operator must demonstrate to the Office of Air Resources that:
 - a. The malfunction was not attributable to improperly designed equipment, lack of preventative maintenance, careless or improper operation or operator error;

- b. The malfunction is not part of a recurring pattern indicative of inadequate design, operation or maintenance;
- c. Repairs were performed in an expeditious fashion. Off-shift labor and overtime should be utilized, to the extent practicable, to ensure that such repairs were completed as expeditiously as practicable.
- d. All possible steps were taken to minimize emissions during the period of time that repairs were performed.
- e. Emissions during the period of time that the repairs were performed will not:
 - (1) Cause and increase in the ground level ambient concentration at or beyond the property line in excess of that allowed by Air Pollution Control Regulation No. 22 and any Calculated Acceptable Ambient Levels; and
 - (2) Cause or contribute to air pollution in violation of any applicable state or national ambient air quality standard.
- f. The reasons that it would be impossible or impractical to cease the source operation during said period.
- g. The owner/operator's actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs or other relevant evidence.

This demonstration must be provided to the Office of Air Resources within two working days of the time when the malfunction occurred and contain a description of the malfunction, any steps taken to minimize emissions and corrective actions taken.

The owner/operator shall have the burden of proof in seeking to establish that noncompliance was due to unavoidable increases in emissions attributable to the malfunction.

F. Other Permit Conditions

1. To the extent consistent with the requirements of this approval and applicable Federal and State laws, the facility shall be designed, constructed and operated in accordance with the representation of the facility in the permit application dated 13 September 2006.
2. There shall be no bypassing of the scrubber during times when the hydrochloric acid and nitric acid process vessels and storage tanks are being used.

3. Employees of the Office of Air Resources and its authorized representatives shall be allowed to enter the facility at all times for the purpose of inspecting any air pollution source, investigating any condition it believes may be causing air pollution or examining any records required to be maintained by the Office of Air Resources.
4. At all times, including periods of startup, shutdown and malfunction, the permittee shall, to the extent practicable, maintain and operate the Mech-Chem packed tower scrubber in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Office of Air Resources, which may include, but is not limited to, monitoring results, opacity observations, and review of operating and maintenance procedures and inspection of the source.
5. Air pollution control permit Approval No. 1322, issued for the relocation of an Ambi Inc., Model LPT-025 extended packed bed scrubber on 26 October 1994, is revoked. This revocation will become effective upon issuance of this permit.