



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL CERTIFIED MAIL
WARREN COUNTY**

Street Address:

122 S. Front Street

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov. Center
P.O. Box 1049

**Application No: 14-05695
Fac ID: 1483080196**

DATE: 4/28/2005

SUMCO USA
William Romaine
537 Grandin Road
Maineville, OH 450390000

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
309 South Fourth Street, Room 222
Columbus, Ohio 43215

Sincerely,

Michael W. Ahern, Manager
Permit Issuance and Data Management Section
Division of Air Pollution Control

CC: USEPA

HCDES



**Permit To Install
Terms and Conditions**

**Issue Date: 4/28/2005
Effective Date: 4/28/2005**

FINAL PERMIT TO INSTALL 14-05695

Application Number: 14-05695
Facility ID: 1483080196
Permit Fee: **\$200**
Name of Facility: SUMCO USA
Person to Contact: William Romaine
Address: 537 Grandin Road
Maineville, OH 450390000

Location of proposed air contaminant source(s) [emissions unit(s)]:

**537 Grandin Road
Maineville, Ohio**

Description of proposed emissions unit(s):

Installation of new acid etcher to Etch 11, referred to as Etch 11, Side B.

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Director

Part I - GENERAL TERMS AND CONDITIONS

A. Permit to Install General Terms and Conditions

1. Compliance Requirements

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

2. Reporting Requirements

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or record keeping information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
- b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and record keeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

3. Records Retention Requirements

Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

4. Inspections and Information Requests

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. The permittee shall furnish to the Director of the Ohio EPA, or an authorized

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representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emissions unit(s) that is (are) served by such control system(s).

6. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

7. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

8. Termination of Permit to Install

This Permit to Install shall terminate within eighteen months of the effective date of the Permit to Install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

9. Construction of New Sources(s)

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio

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Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

10. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

11. Applicability

This Permit To Install is applicable only to the emissions unit(s) identified in the Permit To Install. Separate Permit To Install for the installation or modification of any other emissions unit(s) are required for any emissions unit for which a Permit To Install is required.

12. Best Available Technology

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

13. Source Operation and Operating Permit Requirements After Completion of Construction

This facility is permitted to operate each source described by this Permit to Install for a period of up to one year from the date the source commenced operation. This permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within ninety (90) days after commencing operation of the emissions unit(s) covered by this permit.

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14. Construction Compliance Certification

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit to Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

15. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable Permit to Install fees within 30 days after the issuance of this Permit to Install.

B. Permit to Install Summary of Allowable Emissions

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

SUMMARY (for informational purposes only)
TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

<u>Pollutant</u>	<u>Tons Per Year</u>
NO _x	2.89
Acid Mists	0.07

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operations(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 specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	OAC rule 3745-17-11(B)
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P079 - Acid Etch (Etch-11, Side B) with NO _x -1 and NO _x -2 scrubbers	OAC rule 3745-31-05(A)(3)	
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OAC rule 3745-23-06(B)

OAC rule 3745-31-05(C)

OAC rule 3745-17-07(A)(1)

SUMC**PTI A****Issued: 4/28/2005**Emissions Unit ID: **P079**

Applicable Emissions
Limitations/Control Measures

See term and condition A.2.d

The acid mist emissions shall not exceed 0.016 pound per hour.

The acid mist emissions shall not exceed 0.07 TPY.

The nitrogen oxides (NO_x) emissions shall not exceed 0.66 pound per hour.

The NO_x emissions shall not exceed 2.89 TPY

See terms and conditions B.1. - B.4.

The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C), OAC rule 3745-23-06(B), and OAC rule 3745-17-07(A)(1).

See term and condition A.2.a.

Visible particulate emissions from any stack associated with emissions unit P079 shall not exceed 20 percent opacity, as a six-minute average, except as specified by rule.

The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

2. Additional Terms and Conditions

- 2.a The actual emissions of Hazardous Air Pollutants (HAPs), as identified in Section 112(b) of Title III of the Clean Air Act from emissions units P001 (Silicon Wafer Manufacturing), P004 (Epitaxial Silicon Wafer Mfg.), P005 (Silicon Wafer Wax mount-removal), P006 (Poly clean Etch Line), P007 Mini-Preclean Line), P008 (Silicon Crystal Formation Process), P009 (Silicone Crystal), P010 (Lapping Process), P012 (Silicone Wafer), P013 (Reactors Process), P014 (Polishing Process), P015 (Final Clean), P016 (Materials Characterization), P017 (Epitaxial Reactor), P020 (Silicon Wafer Mfg.), P021 (ASM Single Wafer Epitaxial Reactor #63), P022 (ASM Single Wafer Epitaxial Reactor #64), P023 (ASM Single Wafer Epitaxial Reactor #65), P024 (E01 - EpiPro Pancake Reactor), P025 (E02 - EpiPro Pancake Reactor), P026 (E03 - EpiPro Pancake Reactor), P027 (E04 - EpiPro Pancake Reactor), P028 (E05 - EpiPro Pancake Reactor), P029 (E06 - EpiPro Pancake Reactor), P030 (E07 - EpiPro Pancake Reactor), P031 (E08 - EpiPro Pancake Reactor), P032 (G01 - Gemini III Pancake Reactor), P033 (G02 - Gemini III Pancake Reactor), P034 (G03 - Gemini III Pancake Reactor), P035 (G04 - Gemini III Pancake Reactor), P036 (A01 - ASM Single Wafer Reactor), P037 (A02 - ASM Single Wafer Reactor), P038 (A03 - ASM Single Wafer Reactor), P039 (A04 - ASM Single Wafer Reactor), P040 (A05 - ASM Single Wafer Reactor), P041 (A06 - ASM Single Wafer Reactor), P042 (A07 - ASM Single Wafer Reactor), P043 (A08 - ASM Single Wafer Reactor), P044 (A09 - ASM Single Wafer Reactor), P045 (A10 - ASM Single Wafer Reactor), P046 (A11 - ASM Single Wafer Reactor), P047 (A12 - ASM Single Wafer Reactor), P048 (A13 - ASM Single Wafer Reactor), P049 (A14 - ASM Single Wafer Reactor), P050 (A15 - ASM Single Wafer Reactor), P051 (B05 - AMT Barrel Reactor), P052 (B06 - AMT Barrel Reactor), P053 (AMT Barrel Reactor), P054 (B08 - AMT Barrel Reactor), P055 (B09 - AMT Barrel Reactor), P056 (B10 - AMT Barrel Reactor), P057 (B11 - AMT Barrel Reactor), P058 (B12 - AMT Barrel Reactor), P059 (B13 - AMT Barrel Reactor), P060 (B14 - AMT Barrel Reactor), P061 (B15 - AMT Barrel Reactor), P062 (B16 - AMT Barrel Reactor), P063 (B17 - AMT Barrel Reactor), P064 (B18 - AMT Barrel Reactor), P065 (B19 - AMT Barrel Reactor), P066 (B20 - AMT Barrel Reactor), P067 (B21 - AMT Barrel Reactor), P068 (B22 - AMT Barrel Reactor), P069 (B23 - AMT Barrel Reactor), P070 (B24 - AMT Barrel Reactor), P071 (B25 - AMT Barrel Reactor), P072 (B26 - AMT Barrel Reactor), P073 (B27 - AMT Barrel Reactor), P074 (B28 - AMT Barrel Reactor), P075 (Exhaust Line Etch-07, Bell Jar Etch-08, Small Quartz Etch-09), P076 (Acid Etch-10), P077 (Acid Etch-11), P078 (Mounter/Polisher Line 1), and P079 (Acid Etch-11, Side B) shall not exceed 9.9 TPY for any single HAP and 24.9 TPY for any combination of HAPs, including HAP acid mists. Compliance with the above limitations shall be based on rolling, 12-month summations. The permittee has existing records to demonstrate compliance with these limits upon issuance of this permit.

- 2.b The hourly and annual acid mist emissions limitations outlined in term A.1. are based upon the emissions unit's potential to emit. Therefore, no hourly records are required to demonstrate compliance with these limits.
- 2.c Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by the use of a wet scrubber, compliance with the operational restrictions, compliance with the emissions limitations, and compliance with the rolling, 12-month HAPs emissions limitations.
- 2.d The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 14-056.

On February 15, 2005, OAC rule 3745-23-06 was rescinded and therefore no longer a part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-23-06, the requirement to satisfy "latest available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

B. Operational Restrictions

1. The NO_x-1 scrubber 1st stage water recirculation flow rate shall be continuously maintained at a value of not less than 85 gallons per minute at all times when emissions from the emissions unit are being vented to the scrubber. The NO_x-1 scrubber 2nd stage water recirculation flow rate shall be continuously maintained at a value of not less than 120 gallons per minute at all times when emissions from the emissions unit are being vented to the scrubber.
2. The NO_x-2 scrubber 1st and 2nd stage water recirculation flow rate shall be continuously maintained at a value of not less than 300 gallons per minute at all times when emissions from the emissions unit are being vented to the scrubber. The NO_x-2 scrubber 3rd stage water recirculation flow rate shall be continuously maintained at a value of not less than 200 gallons per minute at all times when emissions from the emissions unit are being vented to the scrubber.
3. The pH of the scrubbing liquor in the NO_x-1 scrubber shall be maintained within the range of 7.5-13.5 at all times when emissions from the emissions unit are being vented to the scrubber.
4. The pH of the scrubbing liquor in the NO_x-2 scrubber shall be maintained within the range of 7-13 at all times when emissions from the emissions unit are being vented to the scrubber.

C. Monitoring and/or Record keeping Requirements

1. The permittee shall properly install, operate and maintain equipment to continuously monitor the scrubber water recirculation flow rate into the NO_x-1 and NO_x-2 scrubbers and the pH of the scrubber liquor of each scrubber while the emissions unit is in operation. The monitoring devices and any recorders shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information for each day of operation of the NO_x-1 and/or NO_x-2 scrubbers:

- a. The scrubber water recirculation flow rate of each stage, in gallons per minute, on a once per day basis; and
 - b. The pH of the scrubber liquor, on a once per day basis.
2. The permittee shall collect and record the following information each month:
 - a. For emissions units listed in term A.2.a above, the total individual HAP emissions from all materials employed, in tons per month (the sum of each HAP, as calculated, based on HAP usage and scrubber control efficiency);
 - b. For emissions units listed in term A.2.a above, the total combined HAPs emissions from all materials employed, in tons per month (the summation of all HAPs, as calculated, based on HAP usage and scrubber control efficiency);
 - c. For emissions units listed in term A.2.a above, the updated rolling, 12-month summation of each individual HAP emissions, in tons. This shall include the information for the current month and the preceding eleven calendar months; and
 - d. For emissions units listed in term A.2.a above, the updated rolling, 12-month summation of total combined HAPs emissions, in tons. This shall include the information for the current month and the preceding eleven calendar months.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Hamilton County Department of Environmental Services contact. This information does not have to be kept on a individual emissions unit basis.

D. Reporting Requirements

1. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services that identify all periods of time during which the following scrubber parameters were not maintained within the requirements of the Operational Restrictions for the NO_x-1 and NO_x-2 scrubbers:
 - a. The scrubber water recirculation flow rate; and
 - b. The scrubber solution pH.

If no exceedances occurred, the permittee shall state so in the report. These reports shall be submitted by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

2. The permittee shall notify the Hamilton County Department of Environmental Services of any exceedance of the HAP emissions limitations outlined in term and condition A.2.a. If no exceedances occurred, the permittee shall state so in the report. The reports shall be submitted by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarters (October through December, January through March, April through June and July through September, respectively).

E. Testing Requirements

1. Compliance with the emission limitations specified in Section A.1 shall be determined in accordance with the following methods:

Emissions Limitations

The acid mist emissions shall not exceed 0.016 pound per hour
The acid mist emissions shall not exceed 0.07 TPY

Applicable Compliance Methods

- a. If required, compliance with the hourly acid mist emissions limitation shall be demonstrated by inputting actual stack emissions data into the following equation:

$$[(\text{ppm})(\text{MW})(\text{dscfm})(60) / (24.45)(453590)(35.3147)] = \text{lbs acid mist emissions/hr}$$

where:

ppm = the acid mist measured in the exhaust air from the most recent compliance stack test or facility measurement, parts per million
 MW = molecular weight of the compound
 dscfm = exhaust air flow measured during the most recent compliance stack test or facility measurement, dry standard cubic feet per minute; and

- b. If required, compliance with the annual acid mist emissions limitation shall be demonstrated by multiplying the hourly acid mist emissions, as determined in a. by the actual operating hours per year, and divided by 2000 such that the total equals TPY acid mist emissions.

Emissions Limitations

The nitrogen oxides (NO_x) emissions shall not exceed 0.66 pound per hour

The NO_x emissions shall not exceed 2.89 TPY

Applicable Compliance Methods

- a. If required, compliance with the hourly NO_x emissions limitation shall be demonstrated by the NO_x emissions calculations based on an emissions source test of a similar emissions unit as included in PTI application 14-05695, as received on March 11, 2005. If required, the permittee shall demonstrate compliance with the hourly NO_x emission limitation through emission tests performed in accordance with Methods 1- 4 and 7 of 40 CFR Part 60, Appendix A; and
- b. If required, compliance with the annual NO_x emissions limitation shall be demonstrated by multiplying the actual hourly NO_x emissions rate (lbs NO_x/hr) by the actual number of operating hours per year (operating hrs/yr) and by 1 Ton/2000 lbs = TPY NO_x.

Emissions Limitation

Visible particulate emissions from any stack associated with emissions unit P079 shall not exceed 20 percent opacity, as a six-minute average, except as specified by rule

Applicable Compliance Method

If required, compliance shall be determined in accordance with Test Method 9 as set forth in "Appendix on Test Methods" in 40 CFR, Part 60 ("Standards of Performance for New Stationary Sources"), as such Appendix existed on July 1, 2002.

2. Compliance with the HAP emissions limits in term and condition A.2.a shall be demonstrated by the record keeping in term and condition C.2.
3. Compliance with the operational limitations B.1 through B.4 shall be demonstrated by the record keeping in term and condition C.1.

F. Miscellaneous Requirements

1. Modeling to demonstrate compliance with the Ohio EPA's "Air Toxic Policy" was not necessary because the emissions unit's maximum annual emissions for each toxic compound will be less than 1.0 ton. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would cause the emissions of any pollutant that has a listed TLV to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new permit to install.