State of Ohio Environmental Protection Agency

STREET ADDRESS:
Lazarus Government Center
50 W. Town St., Suite 700
Columbus, Ohio 43215

TELE: (614) 644-3020 FAX: (614) 644-3184
www.epa.state.oh.us

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

Certified Mail

8/28/2009

Mr. William Romaine
SUMCO PHOENIX CORP CINCINNATI
537 Grandin Rd
Maineville, OH 45039

No	TOXIC REVIEW
No	PSD
Yes	SYNTHETIC MINOR
No	CEMS
No	MACT
No	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED

RE: FINAL AIR POLLUTION PERMIT-TO-INSTALL AND OPERATE
Facility ID: 1483080196
Permit Number: P0104622
Permit Type: Renewal
County: Warren

Dear Permit Holder:

Enclosed please find a final Air Pollution Permit-to-Install and Operate ("PTIO") which will allow you to install, modify, and/or operate the described emissions unit(s) in the manner indicated in the permit. Because this permit contains conditions and restrictions, please read it very carefully.

Ohio EPA maintains a document entitled "Frequently Asked Questions about the PTIO". The document can be downloaded from the DAPC Web page, www.epa.state.oh.us/dapc, from the "Permits" link. This document contains additional information related to your permit, such as what activities are covered under the PTIO, who has enforcement authority over the permit and Ohio EPA's authorization to inspect your facility and records. Please contact the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469 if you need assistance.

The issuance of this PTIO is a final action of the Director and may be appealed to the Environmental Review Appeals Commission ("ERAC") under Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and describe the action complained of and the grounds for the appeal. The appeal must be filed with the ERAC within thirty (30) days after notice of the Director's action. A filing fee of $70.00 must be submitted to the ERAC with the appeal, although the ERAC, has discretion to reduce the amount of the filing fee if you can demonstrate (by affidavit) that payment of the full amount of the fee would cause extreme hardship. If you file an appeal of this action, you must notify Ohio EPA of the filing of the appeal (by providing a copy to the Director) within three (3) days of filing your appeal with the ERAC. Ohio EPA requests that a copy of the appeal also be provided to the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the ERAC at the following address:

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

If you have any questions regarding this permit, please contact the Hamilton County Dept. of Environmental Services. This permit has been posted to the Division of Air Pollution Control (DAPC) Web page www.epa.state.oh.us/dapc.

Sincerely,

Michael W. Ahern

Michael W. Ahern, Manager
Permit Issuance and Data Management Section, DAPC

Cc: HCDOES

State of Ohio Environmental Protection Agency
Division of Air Pollution Control

FINAL

Air Pollution Permit-to-Install and Operate

for

SUMCO PHOENIX CORP CINCINNATI

Facility ID: 1483080196
Permit Number: P0104622
Permit Type: Renewal
Issued: 8/28/2009
Effective: 8/28/2009
Expiration: 8/28/2014

State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Air Pollution Permit-to-Install and Operate

for

SUMCO PHOENIX CORP CINCINNATI

Table of Contents

Authorization

Facility ID: 1483080196
Application Number(s): A0036650
Permit Number: P0104622
Permit Description: Conversion to FEPTIO for 27 epitaxial reactors previously grouped under EU ID P001.
Permit Type: Renewal
Permit Fee: $0.00
Issue Date: 8/28/2009
Effective Date: 8/28/2009
Expiration Date: 8/28/2014
Permit Evaluation Report (PER) Annual Date: Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

SUMCO PHOENIX CORP CINCINNATI
537 GRANDIN RD
MAINEVILLE, OH 45039

of a Permit-to-Install and Operate for the emissions unit(s) identified on the following page.

Ohio EPA District Office or local air agency responsible for processing and administering your permit:

Hamilton County Dept. of Environmental Services
250 William Howard Taft Pkwy.
Cincinnati, OH 45219-2660
(513)946-7777

The above named entity is hereby granted this Permit-to-Install and Operate for the air contaminant source(s) (emissions unit(s)) listed in this section 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 described emissions unit(s) will operate in compliance with applicable State and federal laws and regulations.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Chris Korleski
Director

Authorization (continued)

Permit Number: P0104622
Permit Description: Conversion to FEPTIO for 27 epitaxial reactors previously grouped under EU ID P001.

Permits for the following emissions unit(s) or groups of emissions units are in this document as indicated below:

Group Name: 16 Champ Reactors

Emissions Unit ID:	**P089**
Company Equipment ID:	Champ R12
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P099**
Company Equipment ID:	Champ R23
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P100**
Company Equipment ID:	Champ R24
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P101**
Company Equipment ID:	Champ R27
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P102**
Company Equipment ID:	Champ R28
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P103**
Company Equipment ID:	Champ R51
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P104**
Company Equipment ID:	Champ R52
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P105**
Company Equipment ID:	Champ R53
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P106**
Company Equipment ID:	Champ R54
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

Emissions Unit ID:	**P107**
Company Equipment ID:	Champ R55
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P108**
Company Equipment ID:	Champ R56
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P109**
Company Equipment ID:	Champ R57
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P110**
Company Equipment ID:	Champ R58
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P111**
Company Equipment ID:	Champ R30
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P112**
Company Equipment ID:	Champ R59
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P113**
Company Equipment ID:	Champ R60
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

Group Name: 3 1884 Reactors

Emissions Unit ID:	**P087**
Company Equipment ID:	1884 R14
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P090**
Company Equipment ID:	1884 R19
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P091**
Company Equipment ID:	1884 R20
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

Group Name: 8 AMT Reactors

Emissions Unit ID:	**P088**

Company Equipment ID:	AMT R01
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P092**
Company Equipment ID:	AMT R03
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P093**
Company Equipment ID:	AMT R05
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P094**
Company Equipment ID:	AMT R08
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P095**
Company Equipment ID:	AMT R09
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P096**
Company Equipment ID:	AMT R10
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P097**
Company Equipment ID:	AMT R11
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P098**
Company Equipment ID:	AMT R36
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

A. Standard Terms and Conditions

1. What does this permit-to-install and operate ("PTIO") allow me to do?

This permit allows you to install and operate the emissions unit(s) identified in this PTIO. You must install and operate the unit(s) in accordance with the application you submitted and all the terms and conditions contained in this PTIO, including emission limits and those terms that ensure compliance with the emission limits (for example, operating, recordkeeping and monitoring requirements).

2. Who is responsible for complying with this permit?

The person identified on the "Authorization" page, above, is responsible for complying with this permit until the permit is revoked, terminated, or transferred. "Person" means a person, firm, corporation, association, or partnership. The words "you," "your," or "permittee" refer to the "person" identified on the "Authorization" page above.

The permit applies only to the emissions unit(s) identified in the permit. If you install or modify any other equipment that requires an air permit, you must apply for an additional PTIO(s) for these sources.

3. What records must I keep under this permit?

You must keep all records required by this permit, including monitoring data, test results, strip-chart recordings, calibration data, maintenance records, and any other record required by this permit for five years from the date the record was created. You can keep these records electronically, provided they can be made available to Ohio EPA during an inspection at the facility. Failure to make requested records available to Ohio EPA upon request is a violation of this permit requirement.

4. What are my permit fees and when do I pay them?

There are two fees associated with permitted air contaminant sources in Ohio:

- PTIO fee. This one-time fee is based on a fee schedule in accordance with Ohio Revised Code (ORC) section 3745.11, or based on a time and materials charge for permit application review and permit processing if required by the Director.

  You will be sent an invoice for this fee after you receive this PTIO and payment is due within 30 days of the invoice date. You are required to pay the fee for this PTIO even if you do not install or modify your operations as authorized by this permit.

- Annual emissions fee. Ohio EPA will assess a separate fee based on the total annual emissions from your facility. You self-report your emissions in accordance with Ohio Administrative Code (OAC) Chapter 3745-78. This fee assessed is based on a fee schedule in ORC section 3745.11 and funds Ohio EPA's permit compliance oversight activities. For facilities that are permitted as synthetic minor sources, the fee schedule is adjusted annually for inflation. Ohio EPA will notify you when it is time to report your emissions and to pay your annual emission fees.

5. When does my PTIO expire, and when do I need to submit my renewal application?

This permit expires on the date identified at the beginning of this permit document (see "Authorization" page above) and you must submit a renewal application to renew the permit. Ohio EPA will send a renewal notice to you approximately six months prior to the expiration date of this permit. However, it is

very important that you submit a complete renewal permit application (postmarked prior to expiration of this permit) even if you do not receive the renewal notice.

If a complete renewal application is submitted before the expiration date, Ohio EPA considers this a timely application for purposes of ORC section 119.06, and you are authorized to continue operating the emissions unit(s) covered by this permit beyond the expiration date of this permit until final action is taken by Ohio EPA on the renewal application.

6. What happens to this permit if my project is delayed or I do not install or modify my source?

This PTIO expires 18 months after the issue date identified on the "Authorization" page above unless otherwise specified if you have not (1) started constructing the new or modified emission sources identified in this permit, or (2) entered into a binding contract to undertake such construction. This deadline can be extended by up to 12 months, provided you apply to Ohio EPA for this extension within a reasonable time before the 18-month period has ended and you can show good cause for any such extension.

7. What reports must I submit under this permit?

An annual permit evaluation report (PER) is required in addition to any malfunction reporting required by OAC rule 3745-15-06 or other specific rule-based reporting requirement identified in this permit. Your PER due date is identified in the Authorization section of this permit.

8. If I am required to obtain a Title V operating permit in the future, what happens to the operating provisions and PER obligations under this permit?

If you are required to obtain a Title V permit under OAC Chapter 3745-77 in the future, the permit-to-operate portion of this permit will be superseded by the issued Title V permit. From the effective date of the Title V permit forward, this PTIO will effectively become a PTI (permit-to-install) in accordance with OAC rule 3745-31-02(B). The following terms and conditions will no longer be applicable after issuance of the Title V permit: Section B, Term 1.b) and Section C, for each emissions unit, Term a)(2).

The PER requirements in this permit remain effective until the date the Title V permit is issued and is effective, and cease to apply after the effective date of the Title V permit. The final PER obligation will cover operations up to the effective date of the Title V permit and must be submitted on or before the submission deadline identified in this permit on the last day prior to the effective date of the Title V permit.

9. What are my obligations when I perform scheduled maintenance on air pollution control equipment?

You must perform scheduled maintenance of air pollution control equipment in accordance with OAC rule 3745-15-06(A). If scheduled maintenance requires shutting down or bypassing any air pollution control equipment, you must also shut down the emissions unit(s) served by the air pollution control equipment during maintenance, unless the conditions of OAC rule 3745-15-06(A)(3) are met. Any emissions that exceed permitted amount(s) under this permit (unless specifically exempted by rule) must be reported as deviations in the annual permit evaluation report (PER), including nonexempt excess emissions that occur during approved scheduled maintenance.

10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report?

If you have a reportable malfunction of any emissions unit(s) or any associated air pollution control system, you must report this to the Hamilton County Dept. of Environmental Services in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed permitted emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.

If you have a malfunction, but determine that it is not a reportable malfunction under OAC rule 3745-15-06(B), it is recommended that you maintain records associated with control equipment breakdown or process upsets. Although it is not a requirement of this permit, Ohio EPA recommends that you maintain records for non-reportable malfunctions.

11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located?

Yes. Under Ohio law, the Director or his authorized representative may inspect the facility, conduct tests, examine records or reports to determine compliance with air pollution laws and regulations and the terms and conditions of this permit. You must provide, within a reasonable time, any information Ohio EPA requests either verbally or in writing.

12. What happens if one or more emissions units operated under this permit is/are shut down permanently?

Ohio EPA can terminate the permit terms associated with any permanently shut down emissions unit. "Shut down" means the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31.

You should notify Ohio EPA of any emissions unit that is permanently shut down by submitting a certification that identifies the date on which the emissions unit was permanently shut down. The certification must be submitted by an authorized official from the facility. You cannot continue to operate an emission unit once the certification has been submitted to Ohio EPA by the authorized official.

You must comply with all recordkeeping and reporting for any permanently shut down emissions unit in accordance with the provisions of the permit, regulations or laws that were enforceable during the period of operation, such as the requirement to submit a PER, air fee emission report, or malfunction report. You must also keep all records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, for at least five years from the date the record was generated.

Again, you cannot resume operation of any emissions unit certified by the authorized official as being permanently shut down without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

13. Can I transfer this permit to a new owner or operator?

You can transfer this permit to a new owner or operator. If you transfer the permit, you must follow the procedures in OAC Chapter 3745-31, including notifying Ohio EPA or the local air agency of the

change in ownership or operator. Any transferee of this permit must assume the responsibilities of the transferor permit holder.

14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"?

This permit and OAC rule 3745-15-07 prohibit operation of the air contaminant source(s) regulated under this permit in a manner that causes a nuisance. Ohio EPA can require additional controls or modification of the requirements of this permit through enforcement orders or judicial enforcement action if, upon investigation, Ohio EPA determines existing operations are causing a nuisance.

15. What happens if a portion of this permit is determined to be invalid?

If a portion of this permit is determined to be invalid, the remainder of the terms and conditions remain valid and enforceable. The exception is where the enforceability of terms and conditions are dependent on the term or condition that was declared invalid.

B. Facility-Wide Terms and Conditions

1. 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).

   a) For the purpose of a permit-to-install document, the facility-wide terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

      (1) None.

   b) For the purpose of a permit-to-operate document, the facility-wide terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

      (1) 2., 3., 4., and 5.

2. The allowable 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 (B07 - 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), P079 (Acid Etch-11, Side B), P080 (Cummins Water Pump), P081 (Onan Generator), P082 (Caterpillar Generator), P083 (Caterpillar Generator), P084 (Caterpillar Generator), P085 (ASM Single Wafer Reactor A016), P086 (ASM Single Wafer Reactor A017), P087 (1884 Reactor R14), P088 (AMT Reactor R01), P089 (Champ Reactor R12), P090 (1884 Reactor R19), P091 (1884 Reactor R20), P092 (AMT Reactor R03), P093 (AMT Reactor R05), P094 (AMT Reactor R08), P095 (AMT Reactor R09), P096 (AMT Reactor R10), P097 (AMT Reactor R11), P098 (AMT Reactor R36), P099 (Champ Reactor R23), P100 (Champ Reactor R24), P101 (Champ Reactor R27), P102 (Champ Reactor R28), P103 (Champ Reactor R51), P104 (Champ Reactor R52), P105 (Champ Reactor R53), P106 (Champ

Reactor R54), P107 (Champ Reactor R55), P108 (Champ Reactor R56), P109 (Champ Reactor R57), P110 (Champ Reactor R58), P111 (Champ Reactor R30), P112 (Champ Reactor R59), and P113 (Champ Reactor R60) 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 a rolling, 12-month summation. The permittee has existing records to demonstrate compliance with these limitations upon issuance of this permit.

3. The permittee shall collect and record the following information each month for all materials containing any hazardous air pollutant (HAP)[1] that are applied in the emissions units listed in 2:

   a) for all epitaxial reactors, the amount of hydrogen chloride (HCl) used (input), in pounds;

   b) for all epitaxial reactors, the amount of HCl released from the reaction of trichlorosilane (TCS), in pounds;

   c) for all epitaxial reactors, the amount of controlled emissions of each HAP, in tons;

   d) for all emissions units, the amount of any other material used which contains HAPs, in tons;

   e) for all emissions units, the individual HAP content for each HAP of each material used, in percent by weight (ton of HAP/ton material);

   f) the total individual HAP emissions for each HAP from all materials employed, in tons per month [for each HAP the sum of c. plus (d. multiplied by e.)];

   g) the total combined HAP emissions from all materials employed, in tons per month (the sum of all HAPs as calculated in f.);

   h) the updated rolling, 12-month summation of each individual HAP emissions, in pounds or tons. This shall include the information for the current month and the preceding eleven calendar months; and

   i) the updated rolling, 12-month summation of total combined HAP emissions, in pounds or tons. This shall include the information for the current month and the preceding eleven calendar months.

   [1]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 an individual emissions unit basis.

4. The permittee shall submit quarterly deviation (excursion) reports for the following emissions unit(s) that identify:

   a) all deviations (excursions) of the following emission limitations, operational restrictions and/or control device operating parameter limitations that restrict the potential to emit (PTE) of any regulated air pollutant and have been detected by the monitoring, record keeping and/or testing requirements in this permit:

Emissions unit IDs	Term & Condition
P001 - P113	B.2.

b) the probable cause of each deviation (excursion);

c) any corrective actions that were taken to remedy the deviations (excursions) or prevent future deviations (excursions); and

d) the magnitude and duration of each deviation (excursion).

If no deviations (excursions) occurred during a calendar quarter, the permittee shall submit a report that states that no deviations (excursions) occurred during the quarter.

The quarterly reports shall be submitted, electronically through Ohio EPA Air Services, each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June), and October 31 (covering July to September), unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

5. Compliance with the emission limitations in 2. of these terms and conditions shall be determined in accordance with the following method(s) identified below:

a) Emission Limitations:

The allowable emissions of Hazardous Air Pollutants (HAPs) as identified in Section 112(b) of Title III of the Clean Air Act from emissions units P001 – P113 as specified in 2. above, shall not exceed 9.9 TPY for any single HAP and 24.9 TPY for any combination of HAPs as specified in 2. above. Compliance with the above limitations shall be determined based upon a rolling, 12-month summation.

Applicable Compliance Method:

Compliance with the HAP emission limitations shall be demonstrated by the methods outlined in the recordkeeping requirements in 3. above.

C. Emissions Unit Terms and Conditions

1. Emissions Unit Group - 16 Champ Reactors: P089, P099, P100, P101, P102, P103, P104, P105, P106, P107, P108, P109, P110, P111, P112, P113,

EU ID	Operations, Property and/or Equipment Description
P089	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P099	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P100	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P101	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P102	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P103	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P104	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P105	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P106	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
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P111	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P112	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P113	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.

a) 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. b)(1)b., d)(1), d)(2) and e)(1).

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)(b)	See b)(2)a.
b.	OAC rule 3745-31-05(D) Synthetic Minor for HAPs to avoid being subject to OAC rule 3745-31-28 and Title V permitting requirements	See Section B.2. through B.5. See b)(2)b., d)(1), and d)(2).
c.	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack associated with these emissions units shall not exceed 20 percent opacity, as a six-minute average, except as specified by rule.
d.	OAC rule 3745-17-11(B)	The particulate emissions (PE) of HCl as an acid mist from each of these emissions units shall not exceed 0.551 pound per hour based on Table I.

(2) Additional Terms and Conditions

a. The Best Available Technology requirements under OAC rule 3745-31-05(A)(3) do not apply to the PE from these air contaminant sources since the calculated annual emission rate for PE is less than 10 tons/yr taking into account the federally enforceable rule limit of 0.551 pound per hour of PE under OAC rule 3745-17-11(B), Table I.

b. The emissions from the emissions units listed above shall be vented to a wet scrubber with a minimum overall control efficiency of 99.5% for PE (HCl as an acid mist) when one or more of the emissions units are in operation.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range or limit for the scrubber liquid flow rate shall be based upon the manufacturer=s specifications until such time as any required performance

testing is conducted and the appropriate range for the parameter is established to demonstrate compliance.

(2) The permittee shall properly install, operate, and maintain equipment to continuously monitor the scrubber liquid flow rate (in gallons per minute) during operation of these emissions unit(s), including periods of startup and shutdown. The permittee shall record the scrubber liquid=s flow rate on a daily basis. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer=s recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee. The acceptable range or limit for the scrubber liquid flow rate shall be based upon the manufacturer=s specifications until such time as any required performance testing is conducted and the appropriate range for the parameter is established to demonstrate compliance.

Whenever the monitored value for the parameter deviates from the range(s) or minimum limit(s) established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date the investigation was conducted;

d. the name(s) of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the control equipment parameters within the acceptable range(s), or at or above the minimum limit(s) specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date the corrective action was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation;

e. the flow rate reading immediately after the corrective action was implemented; and

f. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

These range(s) and/or limit(s) for the liquid flow rate are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the permitted range or limit for the liquid flow rate based upon information obtained during future performance tests that demonstrate compliance with the allowable particulate emission rate for these emissions units. In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

(3) Modeling to demonstrate compliance with, the AToxic Air Contaminant Statute@, ORC 3704.03(F)(4)(b), was not necessary because each of the emissions unit=s maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, will be less than 1.0 ton per year. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified FEPTIO 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 toxic air contaminant to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new FEPTIO.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify:

a. all deviations (excursions) of the following emission limitations, operational restrictions and/or control device operating parameter limitations that restrict the potential to emit (PTE) of any regulated air pollutant and have been detected by the monitoring, record keeping and/or testing requirements in this permit:

i. each period of time (start time and date, and end time and date) when the scrubber and/or the liquid flow rate was outside of the appropriate range or limit specified by the manufacturer and outside of the acceptable range following any required compliance demonstration; and

ii. any period of time (start time and date, and end time and date) when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

b. the probable cause of each deviation (excursion);

c. any corrective actions that were taken to remedy the deviations (excursions) or prevent future deviations (excursions); and

d. the magnitude and duration of each deviation (excursion).

If no deviations (excursions) occurred during a calendar quarter, the permittee shall submit a report that states that no deviations (excursions) occurred during the quarter.

The quarterly reports shall be submitted, electronically through Ohio EPA Air Services, each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June), and October 31 (covering July to September), unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

(2) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the director by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit.

The permittee shall identify in the annual permit evaluation report the following information concerning the operations of the wet scrubber during the 12-month reporting period for this/these emissions unit(s):

a. each period of time (start time and date, and end time and date) when the pressure drop across the scrubber and/or the liquid flow rate was outside of the appropriate range or limit specified by the manufacturer and outside of the acceptable range following any required compliance demonstration;

b. any period of time (start time and date, and end time and date) when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

c. each incident of deviation described in Aa@ or “b” (above) where a prompt investigation was not conducted;

d. each incident of deviation described in Aa@ or “b” where prompt corrective action, that would bring the pressure drop and/or liquid flow rate into compliance with the appropriate range or limit contained in this permit, was determined to be necessary and was not taken; and

e. each incident of deviation described in Aa@ or “b” where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

f) Testing Requirements

(1) Compliance with the emission limitations shall be determined in accordance with the following method(s) identified below and in Section B.5. of this permit:

a. Emission Limitations:

The particulate emissions (PE) of HCl as an acid mist from each of these emissions units shall not exceed 0.551 pound per hour based on Table I.

The emissions from the emissions units listed in Section C. shall be vented to a wet scrubber with a minimum overall control efficiency of 99.5% for PE (HCl as an acid mist) when one or more of the emissions units are in operation.

Applicable Compliance Method:

The permittee shall conduct, or have conducted, emission testing for these emissions units in accordance with the following requirements:

i. The emission testing shall be conducted within 3 months after issuance of the permit; and

ii. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate(s) for PE (HCl as an acid mist), in the appropriate averaging period(s), and the overall control efficiency limitation for PE (HCl as an acid mist).

The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):

Method 5 of 40 CFR Part 60, Appendix A
Method 26, of 40 CFR Part 60, Appendix A

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

The capture efficiency shall be determined using Methods 204 through 204F, as specified in 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the USEPA=s AGuidelines for Determining Capture Efficiency,@ dated January 9, 1995. (The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.)

The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in 3745-21-10 or an alternative test protocol approved by the Ohio EPA. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.

The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.

The PE emission limitation (E, lb/hr) was established pursuant to Table I for Process Weight Rate at Maximum Capacity (P) < 100 tons per hour:

For 0 < (P) < 0.05, (E) = 0.551

b. Emissions Limitation:

Visible particulate emissions from any stack associated with these emissions units 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 through visible emission observations performed in accordance with U.S. EPA Method 9.

g) Miscellaneous Requirements

(1) None.

2. Emissions Unit Group - 3 1884 Reactors: P087, P090, P091,

EU ID	Operations, Property and/or Equipment Description
P087	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P090	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P091	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.

a) 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. b)(1)b., d)(1), d)(2) and e)(1).

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)(b)	See b)(2)a.
b.	OAC rule 3745-31-05(D) Synthetic Minor for HAPs to avoid being subject to OAC rule 3745-31-28 and Title V permitting requirements	See Section B.2. through B.5. See b)(2)b., d)(1), and d)(2).
c.	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack associated with these emissions units shall not exceed 20 percent opacity, as a six-minute average, except as specified by rule.
d.	OAC rule 3745-17-11(B)	The particulate emissions (PE) of HCl as an acid mist from each of these emissions units shall not exceed 0.551 pound per hour based on Table I.

(2) Additional Terms and Conditions

a. The Best Available Technology requirements under OAC rule 3745-31-05(A)(3) do not apply to the PE from these air contaminant sources since the uncontrolled potential to emit for PE is less than 10 tons/yr.

b. The emissions from the emissions units listed above shall be vented to a wet scrubber with a minimum overall control efficiency of 99.5% for PE (HCl as an acid mist) when one or more of the emissions units are in operation.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range or limit for the scrubber liquid flow rate shall be based upon the manufacturer=s specifications until such time as any required performance testing is conducted and the appropriate range for the parameter is established to demonstrate compliance.

(2) The permittee shall properly install, operate, and maintain equipment to continuously monitor the scrubber liquid flow rate (in gallons per minute) during operation of these emissions unit(s), including periods of startup and shutdown. The permittee shall record the scrubber liquid=s flow rate on a daily basis. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer=s recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee. The acceptable range or limit for the scrubber liquid flow rate shall be based upon the manufacturer=s specifications until such time as any required performance testing is conducted and the appropriate range for the parameter is established to demonstrate compliance.

Whenever the monitored value for the parameter deviates from the range(s) or minimum limit(s) established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date the investigation was conducted;

d. the name(s) of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the control equipment parameters within the acceptable range(s), or at or above the minimum limit(s) specified in this

permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date the corrective action was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation;

e. the flow rate reading immediately after the corrective action was implemented; and

f. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

These range(s) and/or limit(s) for the liquid flow rate are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the permitted range or limit for the liquid flow rate based upon information obtained during future performance tests that demonstrate compliance with the allowable particulate emission rate for these emissions units. In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

(3) Modeling to demonstrate compliance with, the AToxic Air Contaminant Statute@, ORC 3704.03(F)(4)(b), was not necessary because each of the emissions unit=s maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, will be less than 1.0 ton per year. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified FEPTIO 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 toxic air contaminant to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new FEPTIO.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify:

a. all deviations (excursions) of the following emission limitations, operational restrictions and/or control device operating parameter limitations that restrict the potential to emit (PTE) of any regulated air pollutant and have been detected by the monitoring, record keeping and/or testing requirements in this permit:

i. each period of time (start time and date, and end time and date) when the scrubber and/or the liquid flow rate was outside of the appropriate range or limit specified by the manufacturer and outside of the acceptable range following any required compliance demonstration; and

ii. any period of time (start time and date, and end time and date) when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

b. the probable cause of each deviation (excursion);

c. any corrective actions that were taken to remedy the deviations (excursions) or prevent future deviations (excursions); and

d. the magnitude and duration of each deviation (excursion).

If no deviations (excursions) occurred during a calendar quarter, the permittee shall submit a report that states that no deviations (excursions) occurred during the quarter.

The quarterly reports shall be submitted, electronically through Ohio EPA Air Services, each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June), and October 31 (covering July to September), unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

(2) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the director by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit.

The permittee shall identify in the annual permit evaluation report the following information concerning the operations of the wet scrubber during the 12-month reporting period for this/these emissions unit(s):

a. each period of time (start time and date, and end time and date) when the pressure drop across the scrubber and/or the liquid flow rate was outside of the appropriate range or limit specified by the manufacturer and outside of the acceptable range following any required compliance demonstration;

b. any period of time (start time and date, and end time and date) when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

c. each incident of deviation described in Aa@ or “b” (above) where a prompt investigation was not conducted;

d. each incident of deviation described in Aa@ or “b” where prompt corrective action, that would bring the pressure drop and/or liquid flow rate into compliance with the

appropriate range or limit contained in this permit, was determined to be necessary and was not taken; and

e. each incident of deviation described in Aa@ or "b" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

f) Testing Requirements

(1) Compliance with the emission limitations shall be determined in accordance with the following method(s) identified below and in Section B.5. of this permit:

a. Emissions Limitation:

The particulate emissions (PE) of HCl as an acid mist from each of these emissions units shall not exceed 0.551 pound per hour based on Table I.

The emissions from the emissions units listed in Section C. shall be vented to a wet scrubber with a minimum overall control efficiency of 99.5% for PE (HCl as an acid mist) when one or more of the emissions units are in operation.

Applicable Compliance Method:

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. The emission testing shall be conducted within 3 months after issuance of the permit; and

ii. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate(s) for PE (HCl as an acid mist), in the appropriate averaging period(s), and the overall control efficiency limitation for PE (HCl as an acid mist).

The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):

Method 5 of 40 CFR Part 60, Appendix A
Method 26, of 40 CFR Part 60, Appendix A

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

The capture efficiency shall be determined using Methods 204 through 204F, as specified in 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the USEPA=s AGuidelines for Determining Capture Efficiency,@ dated January 9, 1995. (The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.)

The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in 3745-21-10 or an alternative test protocol approved by the Ohio EPA. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.

The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.

The PE emission limitation (E, lb/hr) was established pursuant to Table I for Process Weight Rate at Maximum Capacity (P) < 100 tons per hour:

For $0 < (P) < 0.05$, $(E) = 0.551$

b. Emissions Limitation:

Visible particulate emissions from any stack associated with these emissions units 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 through visible emission observations performed in accordance with U.S. EPA Method 9.

g) Miscellaneous Requirements

(1) None.

3. Emissions Unit Group - 8 AMT Reactors: P088, P092, P093, P094, P095, P096, P097, P098,

EU ID	Operations, Property and/or Equipment Description
P088	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P092	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P093	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P094	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P095	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P096	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P097	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.
P098	Vapor deposition of silicon and dopants for the production of epitaxial silicon wafers controlled by condensers and wet scrubbers.

a) 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. b)(1)b., d)(1), d)(2) and e)(1).

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)(b)	See b)(2)a.
b.	OAC rule 3745-31-05(D) Synthetic Minor for HAPs to avoid being subject to OAC rule 3745-31-	See Section B.2. through B.5. See b)(2)b., d)(1), d)(2) and e)(1).

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	28 and Title V permitting requirements	
c.	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack associated with these emissions units shall not exceed 20 percent opacity, as a six-minute average, except as specified by rule.
d.	OAC rule 3745-17-11(B)	The particulate emissions (PE) of HCl as an acid mist from each of these emissions units shall not exceed 0.551 pound per hour based on Table I.

(2) Additional Terms and Conditions

a. The Best Available Technology requirements under OAC rule 3745-31-05(A)(3) do not apply to the PE from these air contaminant sources since the uncontrolled potential to emit for PE is less than 10 tons/yr.

b. The emissions from the emissions units listed above shall be vented to a wet scrubber with a minimum overall control efficiency of 99.5% for PE (HCl as an acid mist) when one or more of the emissions units are in operation.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range or limit for the scrubber liquid flow rate shall be based upon the manufacturer=s specifications until such time as any required performance testing is conducted and the appropriate range for the parameter is established to demonstrate compliance.

(2) The permittee shall properly install, operate, and maintain equipment to continuously monitor the scrubber liquid flow rate (in gallons per minute) during operation of these emissions unit(s), including periods of startup and shutdown. The permittee shall record the scrubber liquid=s flow rate on a daily basis. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer=s recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee. The acceptable range or limit for the scrubber liquid flow rate shall be based upon the manufacturer=s specifications until such time as any required performance testing is conducted and the appropriate range for the parameter is established to demonstrate compliance.

Whenever the monitored value for the parameter deviates from the range(s) or minimum limit(s) established in accordance with this permit, the permittee shall promptly

investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date the investigation was conducted;

d. the name(s) of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the control equipment parameters within the acceptable range(s), or at or above the minimum limit(s) specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date the corrective action was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation;

e. the flow rate reading immediately after the corrective action was implemented; and

f. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

These range(s) and/or limit(s) for the liquid flow rate are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the permitted range or limit for the liquid flow rate based upon information obtained during future performance tests that demonstrate compliance with the allowable particulate emission rate for these emissions units. In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

(3) Modeling to demonstrate compliance with, the AToxic Air Contaminant Statute@, ORC 3704.03(F)(4)(b), was not necessary because each of the emissions unit=s maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, will be less than 1.0 ton per year. OAC Chapter 3745-31 requires permittees to apply for

and obtain a new or modified FEPTIO 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 toxic air contaminant to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new FEPTIO.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify:

a. all deviations (excursions) of the following emission limitations, operational restrictions and/or control device operating parameter limitations that restrict the potential to emit (PTE) of any regulated air pollutant and have been detected by the monitoring, record keeping and/or testing requirements in this permit:

i. each period of time (start time and date, and end time and date) when the scrubber and/or the liquid flow rate was outside of the appropriate range or limit specified by the manufacturer and outside of the acceptable range following any required compliance demonstration; and

ii. any period of time (start time and date, and end time and date) when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

b. the probable cause of each deviation (excursion);

c. any corrective actions that were taken to remedy the deviations (excursions) or prevent future deviations (excursions); and

d. the magnitude and duration of each deviation (excursion).

If no deviations (excursions) occurred during a calendar quarter, the permittee shall submit a report that states that no deviations (excursions) occurred during the quarter.

The quarterly reports shall be submitted, electronically through Ohio EPA Air Services, each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June), and October 31 (covering July to September), unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

(2) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the director by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit.

The permittee shall identify in the annual permit evaluation report the following information concerning the operations of the wet scrubber during the 12-month reporting period for this/these emissions unit(s):

a. each period of time (start time and date, and end time and date) when the pressure drop across the scrubber and/or the liquid flow rate was outside of the appropriate range or limit specified by the manufacturer and outside of the acceptable range following any required compliance demonstration;

b. any period of time (start time and date, and end time and date) when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;

c. each incident of deviation described in Aa@ or "b" (above) where a prompt investigation was not conducted;

d. each incident of deviation described in Aa@ or "b" where prompt corrective action, that would bring the pressure drop and/or liquid flow rate into compliance with the appropriate range or limit contained in this permit, was determined to be necessary and was not taken; and

e. each incident of deviation described in Aa@ or "b" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

f) Testing Requirements

(1) Compliance with the emission limitations shall be determined in accordance with the following method(s) identified below and in Section B.5. of this permit:

a. Emission Limitations:

The particulate emissions (PE) of HCl as an acid mist from each of these emissions units shall not exceed 0.551 pound per hour based on Table I.

The emissions from the emissions units listed in Section C. shall be vented to a wet scrubber with a minimum overall control efficiency of 99.5% for PE (HCl as an acid mist) when one or more of the emissions units are in operation.

Applicable Compliance Method:

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. The emission testing shall be conducted within 3 months after issuance of the permit; and

ii. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate(s) for PE (HCl as an acid mist), in the appropriate averaging period(s), and the overall control efficiency limitation for PE (HCl as an acid mist).

The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):

Method 5 of 40 CFR Part 60, Appendix A

Method 26, of 40 CFR Part 60, Appendix A

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

The capture efficiency shall be determined using Methods 204 through 204F, as specified in 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the USEPA=s AGuidelines for Determining Capture Efficiency,@ dated January 9, 1995. (The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.)

The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in 3745-21-10 or an alternative test protocol approved by the Ohio EPA. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.

The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.

The PE emissions limitation (E, lb/hr) was established pursuant to Table I for Process Weight Rate at Maximum Capacity (P) < 100 tons per hour:

For 0 < (P) < 0.05, (E) = 0.551

b. Emission Limitation:

Visible particulate emissions from any stack associated with this emissions unit 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 through visible emission observations performed in accordance with U.S. EPA Method 9.

g) Miscellaneous Requirements

(1) None