

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION**

July 15, 2015

**PERMIT TO INSTALL  
7-05H**

**ISSUED TO**  
Mersen USA BN Corp. – Bay City Branch

**LOCATED AT**  
900 Harrison Street  
Bay City, Michigan

**IN THE COUNTY OF**  
Bay

**STATE REGISTRATION NUMBER**  
M0705

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: <b>June 25, 2015</b>	
DATE PERMIT TO INSTALL APPROVED: <b>July 15, 2015</b>	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

## PERMIT TO INSTALL

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**Common Abbreviations / Acronyms**

<b>Common Acronyms</b>		<b>Pollutant / Measurement Abbreviations</b>	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO <sub>2</sub> e	Carbon Dioxide Equivalent
CFR	Code of Federal Regulations	dscf	Dry standard cubic foot
COM	Continuous Opacity Monitoring	dscm	Dry standard cubic meter
Department/ department	Michigan Department of Environmental Quality	°F	Degrees Fahrenheit
EU	Emission Unit	gr	Grains
FG	Flexible Group	HAP	Hazardous Air Pollutant
GACS	Gallons of Applied Coating Solids	Hg	Mercury
GC	General Condition	hr	Hour
GHGs	Greenhouse Gases	HP	Horsepower
HVLP	High Volume Low Pressure*	H <sub>2</sub> S	Hydrogen Sulfide
ID	Identification	kW	Kilowatt
IRSL	Initial Risk Screening Level	lb	Pound
ITSL	Initial Threshold Screening Level	m	Meter
LAER	Lowest Achievable Emission Rate	mg	Milligram
MACT	Maximum Achievable Control Technology	mm	Millimeter
MAERS	Michigan Air Emissions Reporting System	MM	Million
MAP	Malfunction Abatement Plan	MW	Megawatts
MDEQ	Michigan Department of Environmental Quality	NMOC	Non-methane Organic Compounds
MSDS	Material Safety Data Sheet	NO <sub>x</sub>	Oxides of Nitrogen
NA	Not Applicable	ng	Nanogram
NAAQS	National Ambient Air Quality Standards	PM	Particulate Matter
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM10	Particulate Matter equal to or less than 10 microns in diameter
NSPS	New Source Performance Standards	PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
NSR	New Source Review	pph	Pounds per hour
PS	Performance Specification	ppm	Parts per million
PSD	Prevention of Significant Deterioration	ppmv	Parts per million by volume
PTE	Permanent Total Enclosure	ppmw	Parts per million by weight
PTI	Permit to Install	psia	Pounds per square inch absolute
RACT	Reasonable Available Control Technology	psig	Pounds per square inch gauge
ROP	Renewable Operating Permit	scf	Standard cubic feet
SC	Special Condition	sec	Seconds
SCR	Selective Catalytic Reduction	SO <sub>2</sub>	Sulfur Dioxide
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		µm	Micrometer or Micron
		VOC	Volatile Organic Compounds
		yr	Year

\*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

### GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
  - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
  - b) A visible emission limit specified by an applicable federal new source performance standard.
  - c) A visible emission limit specified as a condition of this Permit to Install.
  
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**
  
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

**SPECIAL CONDITIONS**

**EMISSION UNIT SUMMARY TABLE**

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

<b>Emission Unit ID</b>	<b>Emission Unit Description (Process Equipment &amp; Control Devices)</b>	<b>Flexible Group ID</b>
EU-VCImpregnation	Graphite parts are impregnated with a multifunctional polycarbodiimide-tetrachloroethylene solution.	FG-Facility
EU-MersenImpreg	Graphite impregnation using impregnation tank, and miscellaneous ovens.	FG-Facility
EU-InstapakFoam	Instapak foam Packaging system.	FG-Facility
EU-TAC	TAC vessel for Tantalum carbide coating using chlorine and controlled by Sic1Scrubber	FG-SIC FG-Facility
EU-A2Sic	A2 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicE5Scrubber	FG-SIC FG-Facility
EU-A3Sic	A3 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicE5Scrubber	FG-SIC FG-Facility
EU-B1Sic	B1 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicABScrubber	FG-SIC FG-Facility
EU-B2Sic	B2 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicABScrubber	FG-SIC FG-Facility
EU-B3Sic	B3 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicB3Scrubber	FG-SIC FG-Facility
EU-B4Sic	B4 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicABScrubber	FG-SIC FG-Facility
EU-B5Sic	B5 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicABScrubber	FG-SIC FG-Facility
EU-1251Sic	1251 vessel for Silicon carbide coating using dimethyldichlorosilane and controlled by the SicE5Scrubber	FG-SIC FG-Facility
EU-1252Sic	1252 vessel for Silicon carbide coating using dimethyldichlorosilane and controlled by the SicE5Scrubber	FG-SIC FG-Facility
EU-1191Sic	1191 vessel for Silicon carbide coating using dimethyldichlorosilane and controlled by the SiCE5Scrubber	FG-SIC FG-Facility
EU-1192Sic	1192 vessel for Silicon carbide coating using dimethyldichlorosilane and controlled by the SiCE5Scrubber	FG-SIC FG-Facility
EU-E2Sic	E2 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by Sic1Scrubber	FG-SIC FG-Facility
EU-E3Sic	E3 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicE3/E4Scrubber	FG-SIC FG-Facility
EU-E4Sic	E4 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicE3/E4Scrubber	FG-SIC FG-Facility
EU-E5Sic	E5 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicE5Scrubber	FG-SIC FG-Facility
EU-PurifFurn1	Nineteen (19) furnaces treated by the dual column F1Scrubber. Furnaces 18-33, Furnace F, Furnace U, and Furnace T	FG-PurifFurnaces FG-Facility
EU-PurifFurn16	Two (2) furnaces treated by the single column F16Scrubber. Furnaces 16E and 16W	FG-PurifFurnaces FG-Facility

<b>Emission Unit ID</b>	<b>Emission Unit Description (Process Equipment &amp; Control Devices)</b>	<b>Flexible Group ID</b>
EU-PurifFurn17	Two (2) furnaces treated by the dual column F1Scrubber. Furnaces 17N and 17S	FG-PurifFurnaces FG-Facility
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.		

**The following conditions apply to: EU-VCIImpregnation**

**DESCRIPTION:** Graphite parts are impregnated with a multifunctional polycarbodiimide-tetrachloroethylene solution.

**Flexible Group ID:** FG-Facility

**POLLUTION CONTROL EQUIPMENT:** N/A

**I. EMISSION LIMITS**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period / Operating Scenario</b>	<b>Equipment</b>	<b>Testing / Monitoring Method</b>	<b>Underlying Applicable Requirements</b>
1. Tetrachloroethylene	2.0 tpy	12-month rolling time period as determined at the end of each calendar month.	EU-VCIImpregnation	SC V.1, SC VI.2	R 336.1224 R 336.1225

**II. MATERIAL LIMITS**

N/A

**III. PROCESS/OPERATIONAL RESTRICTIONS**

N/A

**IV. DESIGN/EQUIPMENT PARAMETERS**

N/A

**V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. The Tetrachloroethylene content of any materials, as applied, shall be determined using manufacturer's formulation data. Upon request of the AQD District Supervisor, the manufacturer's Tetrachloroethylene (HAP) formulation data shall be verified using EPA Test Method 311. (R 336.1205(3))

**VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. (R 336.1224, R 336.1225)

2. The permittee shall keep the following information on a calendar month basis for EU-VCI Impregnation:
- a) Gallons or pounds of each Tetrachloroethylene containing material used.
  - b) Where applicable, gallons or pounds of each Tetrachloroethylene containing material reclaimed.
  - c) Tetrachloroethylene content, in pounds per gallon or pounds per pound, of each Tetrachloroethylene containing material used.
  - d) Tetrachloroethylene emission calculations determining the monthly emission rate of each in tons per calendar month.
  - e) Tetrachloroethylene emission calculations determining the annual emission rate of each in tons per 12-month rolling time period as determined at the end of each calendar month.

The records shall be kept in the format that has been approved by the AQD District Supervisor. All records shall be kept on file at the facility and made available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1901)**

**VII. REPORTING**

N/A

**VIII. STACK/VENT RESTRICTIONS**

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SV-VCI	12	32	<b>R 336.1225, 40 CFR 52.21(c) &amp; (d)</b>

**IX. OTHER REQUIREMENTS**

N/A

**Footnotes:**

<sup>1</sup>This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**The following conditions apply to: EU-MersenImpreg**

**DESCRIPTION:** Graphite impregnation using impregnation tank, and miscellaneous ovens.

**Flexible Group ID:** FG-Facility

**POLLUTION CONTROL EQUIPMENT:** N/A

**I. EMISSION LIMITS**

N/A

**II. MATERIAL LIMITS**

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Coating Used	200 gallons, as applied, minus water	Per calendar month	EU-MersenImpreg	SC VI.2, VI.3	R 336.1702

**III. PROCESS/OPERATIONAL RESTRICTIONS**

N/A

**IV. DESIGN/EQUIPMENT PARAMETERS**

N/A

**V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. (R 336.1201(3))

N/A

**VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. Monthly coating use records shall be completed in a format acceptable to the AQD District Supervisor and made available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. (R 336.1224, R 336.1225, R 336.1702(d))
2. The permittee shall keep a separate written record of the following for the EU-MersenImpreg on a calendar month averaging period:
  - a) The type of each material used (excluding colloidal silica).
  - b) Chemical composition of each material, including weight percent of each component.
  - c) The usage rate (in pounds or gallons) of each material as applied.

The records shall be kept in the format that has been approved by the AQD District Supervisor. All records shall be kept on file at the facility and made available to the Department upon request. (R 336.1225, R 336.1702(a))

3. The permittee shall maintain a current listing from the manufacturer of the chemical composition of each material, including the weight percent of each component. The data may consist of Material Safety Data Sheets, manufacturer's formulation data, or both as deemed acceptable by the AQD District Supervisor. All records shall be kept on file at the facility and made available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1702)**

**VII. REPORTING**

N/A

**VIII. STACK/VENT RESTRICTIONS**

N/A

**IX. OTHER REQUIREMENTS**

N/A

**Footnotes:**

<sup>1</sup>This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**FLEXIBLE GROUP SUMMARY TABLE**

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-SIC	Vessels for silicon carbide coating and tantalum carbide coating using methyltrichlorosilane, dimethyldichlorosilane, and chlorine. Controlled by caustic scrubbers.	EU-TAC, EU-A2Sic, EU-A3Sic, EU-B1Sic, EU-B2Sic, EU-B3Sic, EU-B4Sic, EU-B5Sic, EU-1251Sic, EU-1252Sic, EU-1191Sic, EU-1192Sic, EU-E2Sic, EU-E3Sic, EU-E4Sic, EU-E5Sic
FG-PurifFurnaces	Twenty three (23) graphite purification furnaces, 21 of which are controlled by a dual column F1Scrubber (EU-PurifFurn1 and EU-PurifFurn17) and 2 of which are controlled by the single column F16Scrubber (EU-PurifFurn16)	EU-PurifFurn1, EU-PurifFurn16, EU-PurifFurn17
FG-Machining	Graphite machining with a number of fabric filter/baghouse systems, each with an exhaust gas flow rate of less than 30,000 acfm.	N/A
FG-CleanupSolvents	Miscellaneous cleaning operations throughout plant using organic solvents excluding VCI cleaning.	N/A
FG-Facility	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment.	N/A

**The following conditions apply to: FG-SIC**

**DESCRIPTION:** Vessels for silicon carbide coating and tantalum carbide coating using methyltrichlorosilane, dimethyldichlorosilane, and chlorine.

**Emission Units:** EU-TAC, EU-A2Sic, EU-A3Sic, EU-B1Sic, EU-B2Sic, EU-B3Sic, EU-B4Sic, EU-B5Sic, EU-1251Sic, EU-1252Sic, EU-1191Sic, EU-1192Sic, EU-E2Sic, EU-E3Sic, EU-E4Sic, EU-E5Sic

**POLLUTION CONTROL EQUIPMENT:** Caustic scrubbers. Sic1Scrubber (EU-TAC, EU-E2Sic), SicABScrubber (EU-B1Sic, EU-B2Sic, EU-B4Sic, EU-B5Sic), SicB3Scrubber (EU-B3Sic), SicE5Scrubber (EU-1251Sic, EU-1252Sic, EU-1191Sic, EU-1192Sic, EU-E5Sic, EU-A2Sic, EU-A3Sic), and SicE3/E4Scrubber (EU-E3Sic, EU-E4Sic).

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Hydrogen Chloride	1.3 pph	Test Protocol*	FG-SIC	GC 13, SC VI.3, VI.4	<b>R 336.1224, R 336.1225</b>
2. Hydrogen Chloride	800 pounds per month	Per calendar month	FG-SIC	SC VI.5	<b>R 336.1225</b>

\*Test Protocol shall specify averaging time

**II. MATERIAL LIMITS**

N/A

**III. PROCESS/OPERATIONAL RESTRICTIONS**

- The permittee shall not operate the EU-TAC and/or EU-E2Sic vessels unless the pH of the caustic solution used in the associated Sic1Scrubber is maintained at 8.0 or higher and the liquid flow shall be 108 gallon per minute (gpm) to reduce the acid mass emissions by at least 99 percent. **(R 336.1224, R 336.1225, R 336.1910)**
- The permittee shall not operate the EU-B3Sic vessel unless the pH of the caustic solution used in the associated SicB3Scrubber is maintained at 8.0 or higher and the liquid flow shall be 20 gallon per minute (gpm) to reduce the acid mass emissions by at least 99 percent. **(R 336.1224, R 336.1225, R 336.1910)**
- The permittee shall not operate the EU-E3Sic or EU-E4Sic vessels unless the pH of the caustic solution used in the associated SicE3/E4Scrubber is maintained at 8.0 or higher and the liquid flow shall be 156 gallon per minute (gpm) to reduce the acid mass emissions by at least 99 percent. **(R 336.1224, R 336.1225, R 336.1910)**
- The permittee shall not operate the EU-B1Sic, EU-B2Sic, EU-B4Sic, or EU-B5Sic vessels unless the pH of the caustic solution used in the associated SicABScrubber is maintained at 8.0 or higher and the liquid flow shall be 46 gallon per minute (gpm) to reduce the acid mass emissions by at least 99 percent. **(R 336.1224, R 336.1225, R 336.1910)**

5. The permittee shall not operate the EU-1251Sic, EU-1252Sic, EU-1191Sic, EU-1192Sic, EU-E5Sic, EU-A2Sic, or EU-A3Sic vessels unless the pH of the caustic solution used in the associated SicE5Scrubber is maintained at 8.0 or higher and the liquid flow shall be 170 gallon per minute (gpm) to reduce the acid mass emissions by at least 99 percent. **(R 336.1224, R 336.1225, R 336.1910)**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall not operate any SIC vessel unless each associated scrubber is installed, maintained, and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1910)**
2. The permittee shall equip and maintain each SIC scrubbing system with a liquid flow indicator and a pH meter. **(R 336.1224, R 336.1225, R 336.1910)**
3. The permittee shall not operate more than two of the following vessels simultaneously: EU-B1Sic, EU-B2Sic, EU-B4Sic, or EU-B5Sic. **(R 336.1224, R 336.1225, R 336.1910)**
4. The permittee shall not operate EU-A2Sic and EU-A3Sic simultaneously. **(R 336.1224, R 336.1225, R 336.1910)**

#### **V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

N/A

#### **VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required records and calculations in a format acceptable to the AQD District Supervisor by the 15<sup>th</sup> day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1224, R 336.1225, R 336.1910)**
2. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor the pH and flowrate of the scrubber solution for each SIC scrubber. **(R 336.1224, R 336.1225, R 336.1910)**
3. The permittee shall record the pH and liquid flow of each SIC scrubber once per 8 hr time period whenever any or all emission unit(s) of the FG-SIC is in operation. **(R 336.1224, R 336.1225)**
4. The permittee shall keep, in a satisfactory manner, records of the monitored pH and liquid flow of each SIC unit scrubber. All records shall be kept on file at the facility and made available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1910)**
5. The permittee shall calculate the hydrogen chloride emission rate from FG-SIC for each calendar month, using a method acceptable to the AQD District Supervisor. The permittee shall keep records of hydrogen chloride emission rates on file at the facility and make them available to the Department upon request. **(R 336.1225)**

#### **VII. REPORTING**

N/A

**VIII. STACK/VENT RESTRICTIONS**

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SV-Sic1Scrubber	10	33	R 336.1225, 40 CFR 52.21(c) & (d)
2. SV-SicB3Scrubber	6	33	R 336.1225, 40 CFR 52.21(c) & (d)
3. SV-SicE3/E4Scrubber	20	42.6	R 336.1225, 40 CFR 52.21(c) & (d)
4. SV-SicABScrubber	10	42.6	R 336.1225, 40 CFR 52.21(c) & (d)
5. SV-SicE5Scrubber	24	50	R 336.1225, 40 CFR 52.21(c) & (d)

**IX. OTHER REQUIREMENTS**

N/A

**Footnotes:**

<sup>1</sup>This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**The following conditions apply to: FG-PurifFurnaces**

**DESCRIPTION:** Twenty three (23) graphite purification furnaces

**Emission Units:** EU-PurifFurn1, EU-PurifFurn16, EU-PurifFurn17

**POLLUTION CONTROL EQUIPMENT:** Dual column F1Scrubber (EU-PurifFurn1 and EU-PurifFurn17) and single column F16Scrubber (EU-PurifFurn16)

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.10 lb/1000 lbs of exhaust gases on a dry basis	Test Protocol*	Each stack in FG-PurifFurnaces	GC 13	R 336.1331
2. Chlorine	0.46 pph	Test Protocol*	EU-PurifFurn1 and EU-PurifFurn17 (combined)	GC 13, SC VI.1	R 336.1225
3. Chlorine	0.60 pph	Test Protocol*	EU-PurifFurn16	GC 13, SC VI.1	R 336.1225
4. Chlorine	850 lb/yr	12-month rolling time period as determined at the end of each calendar month	EU-PurifFurn16	SC VI.2	R 336.1225

\*Test Protocol shall specify averaging time

**II. MATERIAL LIMITS**

1. The chlorine feed rate to FG-PurifFurnaces shall not exceed 106 pounds per hour. **(R 336.1225)**

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall not operate EU-PurifFurn1, EU-PurifFurn16, or EU-PurifFurn17 unless the following equipment is installed and is operating properly to reduce the chlorine mass emissions by at least 99 percent:
  - a) Differential pressure gauge to measure pressure drop across each scrubber packing.
  - b) Scrubbing liquid acidity/basicity monitor for each scrubber.
  - c) Chlorine tank weigh scale and display used to calculate and record chlorine usage.**(R 336.1225, R 336.1910)**
2. The permittee shall not operate any furnaces of EU-PurifFurn17 simultaneously. **(R 336.1225)**
3. The input of chlorine to EU-PurifFurn1 and EU-PurifFurn17 shall immediately cease under any of the following conditions to reduce the chlorine mass emissions by at least 99 percent:
  - a) Differential pressure across the scrubber packing exceeds 3.0 inches water gauge in the scrubber column.
  - b) Scrubber basicity falls below 8.0 pH.
  - c) Scrubbing solution flow falls below 60 gallons per minute.**(R 336.1201, R 336.1225, R 336.1910)**

4. The input of chlorine to EU-PurifFurn16 shall immediately cease under any of the following conditions to reduce the chlorine mass emissions by at least 99 percent:
- a) Differential pressure across the scrubber packing exceeds 3.0 inches water gauge in scrubber column.
  - b) Scrubber basicity falls below 8.0 pH.
  - c) Scrubbing solution flow falls below 60 gallons per minute.
- (R 336.1201, R 336.1225, R 336.1910)**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall not operate EU-PurifFurn1, EU-PurifFurn16, or EU-PurifFurn17 unless the associated wet scrubber is installed and operating properly. **(R 336.1910)**

#### **V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

N/A

#### **VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall monitor and record, on a per shift basis, the following process parameters for FG-PurifFurnaces whenever any emission unit is in operation:
- a) Each scrubbing solution flow rate.
  - b) Each differential pressure drop across scrubbing packing.
  - c) Each scrubbing solution basicity (pH).
  - d) Total chlorine input rate in lbs per hour.

The permittee shall monitor and record the above parameters with instrumentation acceptable to the Air Quality division. All recorded information shall be kept on file at the facility and made available to the District Supervisor upon request. **(R 336.1225, R 336.1910)**

2. The permittee shall calculate the chlorine emission rate from EU-PurifFurn16 monthly, for the preceding 12-month rolling time period, using a method acceptable to the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225)**

#### **VII. REPORTING**

N/A

#### **VIII. STACK/VENT RESTRICTIONS**

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SV-PurifFurn1	18	70	R 336.1225, 40 CFR 52.21(c) & (d)
2. SV-PurifFurn16	10	59	R 336.1225, 40 CFR 52.21(c) & (d)

**IX. OTHER REQUIREMENTS**

N/A

**Footnotes:**

<sup>1</sup>This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**The following conditions apply to: FG-Machining**

**DESCRIPTION:** Graphite machining

**Emission Units:** N/A

**POLLUTION CONTROL EQUIPMENT:** A number of fabric filter/baghouse systems, each with an exhaust gas flow rate of less than 30,000 acfm.

**I. EMISSION LIMITS**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period/ Operating Scenario</b>	<b>Equipment</b>	<b>Testing / Monitoring Method</b>	<b>Underlying Applicable Requirements</b>
1. PM	0.01 lbs/1000 lbs of exhaust gases	Test Protocol*	FG-Machining	GC 13	<b>R 336.1331</b>
*Test Protocol shall specify averaging time					

2. The permittee shall not cause or permit to be discharged into the outer air from FG-Machining equipment a visible emission of density greater than a six-minute average of 5 percent opacity. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1303)**

**II. MATERIAL LIMITS**

N/A

**III. PROCESS/OPERATIONAL RESTRICTIONS**

N/A

**IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall not operate FG-Machining unless the each baghouse is installed and operating properly. Also, the exhaust gas flow rate of each bag house shall be less than 30,000 actual cubic feet per minute (ACFM). **(R 336.1910)**

**V. TESTING/SAMPLING**

N/A

**VI. MONITORING/RECORDKEEPING**

N/A

**VII. REPORTING**

N/A

**VIII. STACK/VENT RESTRICTIONS**

N/A

**IX. OTHER REQUIREMENTS**

N/A

**Footnotes:**

<sup>1</sup>This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**The following conditions apply to: FG-CleanupSolvents**

**DESCRIPTION:** Miscellaneous cleaning operations throughout plant using organic solvents excluding VCI cleaning.

**Emission Units:** N/A

**POLLUTION CONTROL EQUIPMENT:** N/A

**I. EMISSION LIMITS**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period/ Operating Scenario</b>	<b>Equipment</b>	<b>Testing / Monitoring Method</b>	<b>Underlying Applicable Requirements</b>
1. VOC	0.7 tpy	12-month rolling time period as determined at the end of each calendar month.	FG-CleanupSolvents	SC VI.2, VI.3	<b>R 336.1702(a)</b>
2. Acetone	0.7 tpy	12-month rolling time period as determined at the end of each calendar month.	FG-CleanupSolvents	SC VI.2, VI.3	<b>R 336.1224(a)</b>

**II. MATERIAL LIMITS**

N/A

**III. PROCESS/OPERATIONAL RESTRICTIONS**

N/A

**IV. DESIGN/EQUIPMENT PARAMETERS**

N/A

**V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The VOC content, water content and density of any material, as applied, shall be determined using manufacturer's formulation data or federal Reference Test Method 24. If the Method 24 and the formulation values should differ, the Method 24 results shall be used to determine compliance. **(R 336.1702(a), R 336.2001, R 336.2003, R 336.2004, R 336.2040(5))**

**VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. **(R 336.1225, R 336.1702(a))**

2. The permittee shall keep a separate written record of the following for the FG-CleanupSolvents on a calendar month averaging period:
  - a) The type of each material used.
  - b) Chemical composition of each material, including weight percent of each component.
  - c) The VOC/acetone content of each material, with and without water and exempt solvents, (in percent by weight or pounds per gallon), as received and as applied.
  - d) The usage rate (in pounds or gallons) of each material as applied.
  - e) The amount (in pounds) of each material reclaimed.
  - f) VOC and acetone emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.

The records shall be kept in the format that has been approved by the AQD District Supervisor. All records shall be kept on file for a period of at least five years and shall be made available to the Department upon request. **(R 336.1225, R 336.1702(a))**

3. The permittee shall maintain a current listing from the manufacturer of the chemical composition of each material, including the weight percent of each component. The data may consist of Material Safety Data Sheets, manufacturer's formulation data, or both as deemed acceptable by the AQD District Supervisor. All records shall be kept on file for a period of at least five years and made available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1702)**

## **VII. REPORTING**

N/A

## **VIII. STACK/VENT RESTRICTIONS**

N/A

## **IX. OTHER REQUIREMENTS**

N/A

### **Footnotes:**

<sup>1</sup>This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**The following conditions apply Source-Wide to: FG-Facility**

**I. EMISSION LIMITS**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period/ Operating Scenario</b>	<b>Equipment</b>	<b>Testing / Monitoring Method</b>	<b>Underlying Applicable Requirements</b>
1. Each individual HAP	Less than 9.0 tpy	12-month rolling time period as determined at the end of each calendar month.	FG-Facility	SC VI.2	<b>R 336.1205(3)</b>
2. Aggregate HAPs	Less than 22.0 tpy	12-month rolling time period as determined at the end of each calendar month.	FG-Facility	SC VI.2	<b>R 336.1205(3)</b>

**II. MATERIAL LIMITS**

N/A

**III. PROCESS/OPERATIONAL RESTRICTIONS**

N/A

**IV. DESIGN/EQUIPMENT PARAMETERS**

N/A

**V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The HAP content of any materials, as applied, shall be determined using manufacturer's formulation data. Upon request of the AQD District Supervisor, the manufacturer's HAP formulation data shall be verified using the USEPA Test Method 311. **(R 336.1205(3))**

**VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. **(R 336.1205(3), R 336.1224, R 336.1225)**
2. The permittee shall keep the following information on a calendar month basis for FG-Facility:
  - a) Gallons or pounds of each HAP containing material used.
  - b) Where applicable, gallons or pounds of each HAP containing material reclaimed.
  - c) HAP content, in pounds per gallon or pounds per pound, of each HAP containing material used.
  - d) Individual and aggregate HAP emission calculations determining the monthly emission rate of each in tons per calendar month. Note: Calculations shall include HAP emissions generated or caused by operations, in addition to HAP emissions due to raw material.
  - e) Individual and aggregate HAP emission calculations determining the annual emission rate of each in tons per 12-month rolling time period as determined at the end of each calendar month.

The records shall be kept in the format specified in Appendix A, AppendixB, or an alternative format that has been approved by the AQD District Supervisor (only HAP/HAPs emissions). All records shall be kept on file for a period of at least five years and be made available to the Department upon request. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1702)**

**VII. REPORTING**

N/A

**VIII. STACK/VENT RESTRICTIONS**

N/A

**IX. OTHER REQUIREMENTS**

1. The permittee shall maintain a label on each emission unit covered under this permit with a method acceptable to the District Supervisor. **(R 336.1201))**

**Footnotes:**

<sup>1</sup>This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**APPENDIX A  
 HAP Emissions from FG-Facility**

Month/Year \_\_\_\_\_

Material (A, B, C, etc.)	A Pounds Material- A Used, As Received	B VOC % By wt in Material	C Pounds of VOC	D HAP #1 % By wt	E=AxD/100 Lbs HAP #1 (Name)	F HAP #2 % By wt	G=AxF/100 Lbs HAP #2 (Name)	H HAP #3 % By wt	I=AxH/100 Lbs HAP #3 (Name)	J HAP #4 % By wt	K=AxI/100 Lbs HAP #4 (Name)	L HAP #5 % By wt	M=AxL/100 Lbs HAP #5 (Name)	N HAP #6 % By wt	O=AxN/100 Lbs HAP #6 (Name)

Total VOC, P = Sum of C →

Tons Individual HAP, Q = Sum of HAPs/2000 →

12 Month Rolling Average Tons Individual HAP, R →

Total Tons VOC, S = P/2000 →

Total Tons Aggregated HAPs, U = Sum of All Q →

12 Month Rolling Average Tons VOC,  
 T →

12 Month Rolling Average Tons Aggregate HAPs, V = Sum of All R →

R = Total Individual HAPs from Previous Eleven Months + Q  
 T = Total VOC from Previous Eleven Months + S  
 V = Total Aggregate HAPs from Previous Eleven Months + U

**APPENDIX B**  
**HAP Emissions from FG-Facility**

Month/Year \_\_\_\_\_

	A	B	C = A x B	D	E = A x D	F	G = C x F	H
Solvents	Gallons Used	Lbs per Gallon	Lbs of Solvent Used	Lbs of VOC per Gallon	Lbs of VOC	HAP #1 % By Wt	Lbs HAP#1 (Name)	Lbs Acetone

Total Tons VOC Emitted, I = E/2000 →

Total Tons HAP #1, K = G/2000 →

12 Month Rolling Average Tons, J →

12 Month Rolling Average Tons, L →

I = Total VOC from Previous Eleven Months + H  
 K = Total HAP #1 from Previous Eleven Months + J