

**MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
AIR QUALITY DIVISION**

May 14, 2024

PERMIT TO INSTALL

07-051

ISSUED TO

Mersen USA GS Corp – Bay City

LOCATED AT

900 Harrison Street
Bay City, Michigan 48608

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 Environment, Great Lakes, and Energy. 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: May 6, 2024	
DATE PERMIT TO INSTALL APPROVED: May 14, 2024	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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COMMON ACRONYMS

AQD	Air Quality Division
BACT	Best Available Control Technology
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
Department/department/EGLE	Michigan Department of Environment, Great Lakes, and Energy
EU	Emission Unit
FG	Flexible Group
GACS	Gallons of Applied Coating Solids
GC	General Condition
GHGs	Greenhouse Gases
HVLP	High Volume Low Pressure*
ID	Identification
IRSL	Initial Risk Screening Level
ITSL	Initial Threshold Screening Level
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MAERS	Michigan Air Emissions Reporting System
MAP	Malfunction Abatement Plan
MSDS	Material Safety Data Sheet
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
PS	Performance Specification
PSD	Prevention of Significant Deterioration
PTE	Permanent Total Enclosure
PTI	Permit to Install
RACT	Reasonable Available Control Technology
ROP	Renewable Operating Permit
SC	Special Condition
SCR	Selective Catalytic Reduction
SNCR	Selective Non-Catalytic Reduction
SRN	State Registration Number
TBD	To Be Determined
TEQ	Toxicity Equivalence Quotient
USEPA/EPA	United States Environmental Protection Agency
VE	Visible Emissions

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

POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm	Actual cubic feet per minute
BTU	British Thermal Unit
°C	Degrees Celsius
CO	Carbon Monoxide
CO ₂ e	Carbon Dioxide Equivalent
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
°F	Degrees Fahrenheit
gr	Grains
HAP	Hazardous Air Pollutant
Hg	Mercury
hr	Hour
HP	Horsepower
H ₂ S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO _x	Oxides of Nitrogen
ng	Nanogram
PM	Particulate Matter
PM10	Particulate Matter equal to or less than 10 microns in diameter
PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
pph	Pounds per hour
ppm	Parts per million
ppmv	Parts per million by volume
ppmw	Parts per million by weight
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
scf	Standard cubic feet
sec	Seconds
SO ₂	Sulfur Dioxide
TAC	Toxic Air Contaminant
Temp	Temperature
THC	Total Hydrocarbons
tpy	Tons per year
µg	Microgram
µm	Micrometer or Micron
VOC	Volatile Organic Compounds
yr	Year

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 Environment, Great Lakes, and Energy, 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 Rule 210 (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 Rule 219 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 Rule 219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy. **(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 condition 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 Rule 301, 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 Rule 303 (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 Rule 370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. **(R 336.2001)**

EMISSION UNIT SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

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

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Flexible Group ID
EU-VCIImpreg	Graphite parts are impregnated with a multifunctional polycarbodiimide-tetrachloroethylene solution.	NA
EU-MersenImpreg	Graphite impregnation using impregnation tank, and miscellaneous ovens.	NA
EU-InstapakFoam	Instapak foam Packaging system.	NA
EU-TAC	TAC vessel for Tantalum carbide coating using chlorine and controlled by Sic1Scrubber	FG-SIC
EU-A2Sic	A2 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicE5Scrubber	FG-SIC
EU-A3Sic	A3 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicE5Scrubber	FG-SIC
EU-B1Sic	B1 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicABScrubber	FG-SIC
EU-B2Sic	B2 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicABScrubber	FG-SIC
EU-B3Sic	B3 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicB3Scrubber	FG-SIC
EU-B4Sic	B4 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicABScrubber	FG-SIC
EU-B5Sic	B5 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicABScrubber	FG-SIC
EU-1251Sic	1251 vessel for Silicon carbide coating using dimethyldichlorosilane and controlled by the SicE5Scrubber	FG-SIC
EU-1252Sic	1252 vessel for Silicon carbide coating using dimethyldichlorosilane and controlled by the SicE5Scrubber	FG-SIC
EU-1191Sic	1191 vessel for Silicon carbide coating using dimethyldichlorosilane and controlled by the SiCE5Scrubber	FG-SIC
EU-1192Sic	1192 vessel for Silicon carbide coating using dimethyldichlorosilane and controlled by the SiCE5Scrubber	FG-SIC

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Flexible Group ID
EU-E2Sic	E2 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by Sic1Scrubber	FG-SIC
EU-E3Sic	E3 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicE3/E4Scrubber	FG-SIC
EU-E4Sic	E4 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicE3/E4Scrubber	FG-SIC
EU-E5Sic	E5 vessel for Silicon carbide coating using methyltrichlorosilane and controlled by SicE5Scrubber	FG-SIC
EU-PuriFurn1	Eighteen (18) furnaces treated by the dual column F1Scrubber. Furnaces 24-41.	FG-PuriFurnaces
EU-PuriFurn16	Two (2) furnaces treated by the single column F16Scrubber. Furnaces 16E and 16W	FG-PuriFurnaces
EU-PuriFurn17	Two (2) furnaces treated by the dual column F1Scrubber. Furnaces 17N and 17S	FG-PuriFurnaces

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 336.1291.

**EU-VCIIMPREG
EMISSION UNIT CONDITIONS**

DESCRIPTION

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

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

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

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

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-VCIImpreg:
 - 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

NA

VIII. STACK/VENT RESTRICTION(S)

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

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

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

**EU-MERSENIMPREG
EMISSION UNIT CONDITIONS**

DESCRIPTION

Graphite impregnation using impregnation tank, and miscellaneous ovens.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing 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 RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

NA

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

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

FLEXIBLE GROUP SPECIAL CONDITIONS

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-PURIFURNACES	Twenty two (22) graphite purification furnaces, 20 of which are controlled by a dual column F1Scrubber (EU-PuriFurn1 and EU-PuriFurn17) and 2 of which are controlled by the single column F16Scrubber (EU-PuriFurn16)	EU-PuriFurn1, EU-PuriFurn16, EU-PuriFurn17
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.	NA
FG-CLNUPSOLVENTS	Miscellaneous cleaning operations throughout plant using organic solvents excluding VCI cleaning.	NA

**FG-SIC
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

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

Emission Unit: 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 LIMIT(S)

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

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

- 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 PARAMETER(S)

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))**

NA

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 15th 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

NA

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
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/E4Scrub	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 REQUIREMENT(S)

NA

Footnotes:

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

**FG-PURIFURNACES
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Twenty two (22) graphite purification furnaces.

Emission Unit: EU-PuriFurn1, EU-PuriFurn16, EU-PuriFurn17.

POLLUTION CONTROL EQUIPMENT

Dual column F1Scrubber (EU-PuriFurn1 and EU-PuriFurn17) and single column F16Scrubber (EU-PuriFurn16).

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. PM	0.10 lb/1000 lbs of exhaust gases on a dry basis	Hourly	Each stack in FG-PURIFURNACES	GC 13	R 336.1331
2. Chlorine	0.46 pph	Hourly	EU-PuriFurn1 and EU-PuriFurn17 (combined)	GC 13, SC VI.1	R 336.1225
3. Chlorine	0.60 pph	Hourly	EU-PuriFurn16	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-PuriFurn16	SC VI.2	R 336.1225

II. MATERIAL LIMIT(S)

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EU-PuriFurn1, EU-PuriFurn16, or EU-PuriFurn17 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-PuriFurn17 simultaneously. **(R 336.1225)**

3. The input of chlorine to EU-PuriFurn1 and EU-PuriFurn17 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-PuriFurn16 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 PARAMETER(S)

1. The permittee shall not operate EU-PuriFurn1, EU-PuriFurn16, or EU-PuriFurn17 unless the associated wet scrubber is installed, maintained, and operated in a satisfactory manner acceptable to the AQD District Supervisor **(R 336.1910)**

V. TESTING/SAMPLING

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

NA

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-PuriFurnaces 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-PuriFurn16 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

NA

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-PuriFurn1	18	70	R 336.1225, 40 CFR 52.21(c) & (d)
2. SV-PuriFurn16	10	59	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

**FG-MACHINING
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Graphite machining.

Emission Unit: NA

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 LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. PM	0.01 lbs/1000 lbs of exhaust gases	Hourly	FG-Machining	GC 13	R 336.1331

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate FG-Machining unless 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

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

NA

VI. MONITORING/RECORDKEEPING

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

NA

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

**FG-CLNUPSOLVENTS
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Miscellaneous cleaning operations throughout plant using organic solvents excluding VCI cleaning.

Emission Unit: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

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

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

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-CLNUPSOLVENTS 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

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

FGFACILITY CONDITIONS

DESCRIPTION

The following conditions apply source-wide to all process equipment including equipment covered by other permits, grand-fathered equipment, and exempt equipment.

POLLUTION CONTROL EQUIPMENT

NA.

I. EMISSION LIMIT(S)

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

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

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 FGFACILITY:
 - 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, Appendix B, 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

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

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:

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

APPENDIX A HAP Emissions from FGFACILITY

Month/Year _____

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

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