

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

June 10, 2022

PERMIT TO INSTALL
74-22

ISSUED TO
Hemlock Semiconductor Operations LLC

LOCATED AT
12334 Geddes Road
Hemlock, Michigan 48626

IN THE COUNTY OF
Saginaw

STATE REGISTRATION NUMBER
B2644

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 25, 2022	
DATE PERMIT TO INSTALL APPROVED: June 10, 2022	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))	Installation Date / Modification Date	Flexible Group ID
EU-S475-HFTANK1	Hydrofluoric acid storage tank, capacity 16,050 gallons. This storage tank is controlled by an acid scrubber.	TBD	FG-S475-ACIDTNKS
EU-S475-HFTANK2	Hydrofluoric acid storage tank, capacity 16,050 gallons. This storage tank is controlled by an acid scrubber.	TBD	FG-S475-ACIDTNKS
EU-S475-HNO3TNK1	Nitric Acid storage tank, capacity 33,830 gallons. This storage tank is controlled by an acid scrubber.	TBD	FG-S475-ACIDTNKS
EU-S475-HNO3TNK2	Nitric Acid storage tank, capacity 33,830 gallons. This storage tank is controlled by an acid scrubber.	TBD	FG-S475-ACIDTNKS
EU-S475-MAINCRSH	Polysilicon rods are broken into chunks under water in a closed tank wet process.	TBD	FG-S475-MAINLINE
EU-S475-MAINSORT	Crushed polysilicon chunks are wet-separated into at least four size categories.	TBD	FG-S475-MAINLINE
EU-S475-ETCH1	Washing and etching system #1 for polysilicon chunks that cleans using a series of agitated acid/DI water baths and etches in a nitric acid and hydrofluoric acid solution. This etching process is controlled by a NOx scrubber.	TBD	FG-S475-MAINLINE
EU-S475-ETCH2	Washing and etching system #2 for polysilicon chunks that cleans using a series of agitated acid/DI water baths and etches in a nitric acid and hydrofluoric acid solution. This etching process is controlled by a NOx scrubber.	TBD	FG-S475-MAINLINE
EU-S475-DRYER1	A hot air drying and packaging process for small polysilicon pieces from the sorting process that are not etched. . The process uses an electric dryer and is controlled by dust collector S475-1.	TBD	FG-S475-FINISH
EU-S475-DRYER2	A hot air drying and packaging process for small polysilicon pieces from the sorting process that are not etched The process uses an electric dryer and is controlled by dust collector S475-2.	TBD	FG-S475-FINISH
EU-S475-PACK1	Packaging line #1 for polysilicon product. The bagging is routed to dust collector S475-1.	TBD	FG-S475-FINISH
EU-S475-PACK2	Packaging line #1 for polysilicon product. The bagging is routed to dust collector S475-2.	TBD	FG-S475-FINISH

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.

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-S475-MAINLINE	A polycrystalline silicon finishing process consisting of polysilicon rod crushing process, sorting process, and two washing/etching lines. The crushing process is performed underwater in an enclosed tank system. The washing/etching lines consist of a series of agitated hydrofluoric/nitric acid and deionized water baths and are controlled by the NOx scrubber.	EU-S475-MAINCRSH, EU-S475-MAINSORT, EU-S475-ETCH1, EU-S475-ETCH2
FG-S475-ACIDTNKS	Two 33,830-gallon nitric acid storage tank and two 16,050-gallon hydrofluoric acid storage tank.	EU-S475-HFTANK1, EU-S475-HFTANK2, EU-S475-HNO3TNK1, EU-S475-HNO3TNK2
FG-S475-FINISH	Two drying processes for wet/non-etched polysilicon chunks and two packaging lines for etched polysilicon.	EU-S475-DRYER1, EU-S475-DRYER2, EU-S475-PACK1, EU-S475-PACK2

**FG-S475-MAINLINE
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

A polycrystalline silicon finishing process consisting of polysilicon rod crushing process, sorting process, and two washing/etching lines. The crushing process is performed underwater in an enclosed tank system. The washing/etching lines consist of a series of agitated hydrofluoric/nitric acid and deionized water baths and are controlled by the NOx scrubber.

Emission Unit: EU-S475-MAINCRSH, EU-S475-MAINSORT, EU-S475-ETCH1, EU-S475-ETCH2

POLLUTION CONTROL EQUIPMENT

- Enclosed underwater tank system
- NOx Scrubber

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. NOx	26.3 tpy	12-month rolling time period as determined at the end of each calendar month	FG-S475-MAINLINE	SC VI.2, SC VI.3	R 336.1205
2. NOx	9.0 pph	Hourly	NOx scrubber stack portion of FG-S475-MAINLINE	SC V.1	40 CFR 52.21 (c) & (d)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate FG-S475-MAINLINE unless a malfunction abatement plan (MAP), as described in Rule 911(2), has been submitted within 45 days of trial operation of the first EU controlled by the NOx scrubber, and is implemented and maintained. The MAP shall, at a minimum, specify the following:
 - a) A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
 - b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
 - c) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days if new equipment is installed or upon request from the District

Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1224, R 336.1225, R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EU-S475-ETCH1 or EU-S475-ETCH2 unless the NOx scrubber is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the NOx scrubber includes monitoring and recording the operating parameters specified in the table below and operating in accordance with the MAP required by SC III.1. **(R 336.1205, R 336.1224, R 336.1225, R 336.1910, 40 CFR 52.21(c) & (d))**

Parameter	Units ^a
Stage 1 (CC-1) Scrubber Liquid Flow Rate	Minimum Gallons per minute (gpm)
Stage 1 (CC-1) Scrubber Liquid Exit pH	Minimum pH
Stage 1 (CC-1) Pressure Drop	Minimum Inches of water (in. H ₂ O)
Stage 2 (CC-2) Scrubber Liquid Flow Rate	Minimum gpm
Stage 2 (CC-2) Scrubber Liquid Exit pH	Minimum pH
Stage 2 (CC-2) Pressure Drop	Minimum in. H ₂ O

^a Manufacturer's recommended values may be used prior to the initial performance test upon receiving written approval from the AQD District Supervisor. After acceptable performance test(s) have been performed, each operating parameter listed in this table shall be maintained at the value determined during the most recent control device performance test(s) which demonstrated compliance with the emission limit listed in SC I.1 of this section.

2. The permittee shall not operate EU-S475-MAINCRSH unless the process is performed under water in a closed tank wet process. **(R 336.1205, 40 CFR 52.21 c) & (d))**
3. The permittee shall equip and maintain each stage (CC-1 and CC-2) of the NOx scrubber with separate devices to continuously monitor scrubber liquid flow rate, scrubber liquid exit pH, and pressure drop. The permittee shall calibrate each scrubber liquid flow rate indicator, scrubber liquid exit pH indicator, and pressure drop indicator in a satisfactory manner acceptable to the AQD District Supervisor. **(R 336.1205, R 336.1224, R 336.1225, R 336.1910, 40 CFR 52.21(c) & (d))**

V. TESTING/SAMPLING

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

1. Within 180 days after commencement of trial operation of EU-S475-ETCH1 or EU-S475-ETCH2, whichever is installed first, the permittee shall verify NOx emission rates from the NOx scrubber portion of FG-S475-MAINLINE by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol and must meet the requirements of the federal Clean Air Act, all applicable state and federal rules and regulations, and be within the authority of the AQD to make the change. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**
2. Within 180 days after commencement of trial operation of EU-S475-ETCH1 and EU-S475-ETCH2, whichever is installed second, the permittee shall verify NOx emission rates from the NOx scrubber portion of FG-S475-MAINLINE by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol

and must meet the requirements of the federal Clean Air Act, all applicable state and federal rules and regulations, and be within the authority of the AQD to make the change. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

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 calculations in a format acceptable to the AQD District Supervisor by the last 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 336.1702(a), R 336.1910)**
2. The permittee shall calculate the NOx emission rates from FG-S475-MAINLINE for each calendar month and 12-month rolling time period using mass balance or an alternate method and format acceptable to the AQD District Supervisor. The permittee shall keep records on file at the facility and make them available to the Department upon request. **(R 336.1205)**
3. The permittee shall record the following for each stage (CC-1 and CC-2) of the NOx scrubber on a per shift basis:
 - a) Scrubber Liquid Flow Rate
 - b) Scrubber Liquid Exit pH
 - c) Pressure Drop

The permittee shall keep records on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1910, 40 CFR 52.21(c) & (d))**

4. The permittee shall keep records of operating hours for EU-S475-ETCH1 and EU-S475-ETCH2EU, each separately or combined. **(R 336.1224, R 336.1910, 40 CFR 52.21(c) & (d))**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of FG-S475-MAINLINE. **(R 336.1201(7)(a))**

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-H470SCRB	48	80	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-S475-ACIDTNKS
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two 33,830-gallon nitric acid storage tank and two 16,050-gallon hydrofluoric acid storage tank.

Emission Unit: EU-S475-HFTANK1, EU-S475-HFTANK2, EU-S475-HNO3TNK1, EU-S475-HNO3TNK2

POLLUTION CONTROL EQUIPMENT

Acid scrubber

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate FG-S475-ACIDTNKS unless a malfunction abatement plan (MAP), as described in Rule 911(2), has been submitted within 45 days of trial operation of the first EU associated with FG-S475-ACIDTNKS, and is implemented and maintained. The MAP shall, at a minimum, specify the following:
 - a) A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
 - b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
 - c) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. (R 336.1224, R 336.1225, R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate FG-S475-ACIDTNKS unless the acid scrubber is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the acid scrubber includes monitoring and recording the operating parameters specified in the table below and operating in accordance with the MAP required by SC III.1. (R 336.1224, R 336.1225, R 336.1910)

Parameter	Units ^a
Scrubber Liquid Flow Rate	Minimum Gallons per minute (gpm)
Scrubber Liquid Exit pH	Minimum pH
Pressure Drop	Minimum Inches of water (in. H ₂ O)
^a Manufacturer's recommended values shall be used until submittal and approval of the MAP required in SC III.1.	

- The permittee shall equip and maintain the acid scrubber with devices to continuously monitor scrubber liquid flow rate, scrubber liquid exit pH, and pressure drop. The permittee shall calibrate each scrubber liquid flow rate indicator, scrubber liquid exit pH indicator, and pressure drop indicator in a satisfactory manner acceptable to the AQD District Supervisor. **(R 336.1205, R 336.1224, R 336.1225, R 336.1910, 40 CFR 52.21(c) & (d))**

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))**

- The permittee shall record the following for the acid scrubber on a per shift basis:
 - Scrubber Liquid Flow Rate
 - Scrubber Liquid Exit pH
 - Pressure Drop

The permittee shall keep records on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1910, 40 CFR 52.21(c) & (d))**

VII. REPORTING

- Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of FGACIDTANKS. **(R 336.1201(7)(a))**

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-H470ACID	24	80	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-S475-FINISH
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two drying processes for wet/non-etched polysilicon chunks and two packaging lines for etched polysilicon.

Emission Unit: EU-DRYER1, EU-DRYER2, EU-PACKAGING1, EU-PACKAGING2

POLLUTION CONTROL EQUIPMENT

Dust collector S475-1 and dust collector S475-2

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. PM	0.04 pph	Hourly	Each dust collector in FG-S475-FINISH	SC V.1	R 336.1331
2. PM10	0.04 pph	Hourly	Each dust collector in FG-S475-FINISH	SC V.1	40 CFR 52.21 (c) & (d)
3. PM2.5	0.04 pph	Hourly	Each dust collector in FG-S475-FINISH	SC V.1	40 CFR 52.21 (c) & (d)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate FG-S475-FINISH unless a malfunction abatement plan (MAP), as described in Rule 911(2), has been submitted within 45 days of trial operation, and is implemented and maintained. The MAP shall, at a minimum, specify the following:
 - a) A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
 - b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
 - c) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1224, R 336.1225, R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any EU in FG-S475-FINISH unless the associated dust collector is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of each dust collector includes installing a filter with a minimum MERV rating of 15 and operating in accordance with the MAP required by SC III.1. **(R 336.1224, R 336.1225, R 336.1910)**
2. The permittee shall equip and maintain each dust collector with an alarm that will signal when the pressure drop is outside of manufacturer's recommended settings. **(R 336.1910, 40 CFR 52.21(c) & (d))**

V. TESTING/SAMPLING

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

1. Upon request of the AQD District Supervisor, the permittee shall verify PM, PM10, and PM2.5 emission rates from one or both dust collector portions of FG-S475-FINISH by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A or Part 10 of the Michigan Air Pollution Control Rules. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol and must meet the requirements of the federal Clean Air Act, all applicable state and federal rules and regulations, and be within the authority of the AQD to make the change. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1331, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall maintain current information from the manufacturer, as part of the MAP required by SC III.1, that each dust collector in FG-S475-FINISH is equipped with an alarm that will signal when the pressure drop of the respective dust collector is outside of the manufacturer's recommended settings, including how the alarm system is set up to measure pressure drop and how the alarm is triggered. All records shall be kept on file for a period of at least five years and made available to the Department upon request. **(R 336.1910, 40 CFR 52.21(c) & (d))**
2. The permittee shall keep records of when the pressure drop alarm is triggered. The records shall include date, duration, cause of the alarm, and any corrective action taken. All records shall be kept on file and made available to the Department upon request. **(R 336.1910, 40 CFR 52.21(c) & (d))**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of FG-S475-FINISH. **(R 336.1201(7)(a))**

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-DC1	17 x 15.6	16	40 CFR 52.21 (c) & (d)
2. SV-DC2	17 x 15.6	16	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).