

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

DECEMBER 18, 2020

PERMIT TO INSTALL
549-97C

ISSUED TO
AMERITI MANUFACTURING COMPANY

LOCATED AT
19300 FILER AVENUE
DETROIT, MICHIGAN 48306

IN THE COUNTY OF
WAYNE

STATE REGISTRATION NUMBER
A8892

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: October 29, 2020	
DATE PERMIT TO INSTALL APPROVED: December 18, 2020	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
EUDRYER1	Natural gas rotary dryer processing titanium scrap (crushed turnings/"chips"). This dryer is located in Wash Building 1 and the emissions are controlled by a cyclone and a Rotoclone wet scrubber.	FGDRYERS
EUDRYER2	Natural gas rotary dryer processing titanium scrap (crushed turnings/"chips"). This dryer is located in Wash Building 2 building and the emissions are controlled by a cyclone and a Sly venturi wet scrubber.	FGDRYERS
EUFETIFURN1	Inductotherm induction crucible furnace for melting ferrotitanium. Rated for 2,500 lb/charge. Located in the Melt Shop. Controlled by the 40,000 cfm Dustar baghouse.	FGFETIFURNS
EUFETIFURN2	Inductotherm induction crucible furnace for melting ferrotitanium. Rated for 2,500 lb/charge. Located in the Melt Shop. Controlled by the 40,000 cfm Dustar baghouse.	FGFETIFURNS
EUFETICRUSH1	Kue Ken 90/57 crusher which processes ferrotitanium "heats" (ingots) from the induction furnaces. This crusher is located in the Melt shop and the emissions are controlled by a Tri-Mer 1,500 cfm wet scrubber.	FGFETICRUSHERS
EUFETICRUSH2	Kue Ken 55 crusher processing materials from EUFETICRUSH1. This crusher is located in Warehouse 4 and the emissions are controlled by a Tri-Mer 12,000 cfm wet scrubber shared with EUFETICRUSHER3.	FGFETICRUSHERS
EUFETICRUSH3	Kue Ken 24/25 crusher processing materials from EUFETICRUSH2. This crusher is located in Warehouse 4 and the emissions are controlled by a Tri-Mer 12,000 cfm wet scrubber shared with EUFETICRUSHER2.	FGFETICRUSHERS
EUFETICRUSH4	Roll crusher processing materials discharged from EUFETICRUSH2 and/or EUFETICRUSH3. This crusher is located in Warehouse 4 and the emissions are controlled by a Tri-Mer 6,000 cfm wet scrubber.	FGFETICRUSHERS
EUPOWDER	<p>Titanium powders are produced through the hydride de-hydride (HDH) process.</p> <p>Two (2) electrically heated vacuum furnaces and several closed-system powder screeners are uncontrolled.</p> <p>A powder crushing terminator and rod mill crusher, a terminator, two (2) powder crushing attrition mills, and screeners are controlled by the 5,000 cfm AER HazDust wet scrubber.</p> <p>An impact mill, a powder crushing attrition mill, powder granulating and screening, and powder blending are controlled by the 1,000 cfm Tri-Mer 10-M wet scrubber.</p>	FGPOWDER

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Flexible Group ID
EUDOSS	<p>Some powders from the HDH process go through the de-oxidation process (DOSS Process). This process uses the same electrically heated vacuum furnaces as EUPOWDER, and also includes the following equipment located in the Church building:</p> <p>A dilute HCl water bath and closed-system screeners are uncontrolled.</p> <p>An impact mill, (2) attrition mills, (2) terminators, and blending operations are controlled by the 6,000 cfm Schubert wet scrubber.</p>	FGPOWDER
EUWAX	Wax patterns are made with molds or with a 3D printer. Patterns are then cleaned and etched.	FGMOLD
EUSANDERS	Ceramic molds are made by dipping the wax patterns in a series of three water-based ceramic slurry mixtures and tumbling them in sanders in between each slurry dip. Sanders are controlled by an AGET cyclone dust collector.	FGMOLD
EUAUTOCLAVE	Autoclave steam chamber to melt wax out of the cast, heated by natural gas with a maximum rated heat input of 398,000 Btu/hr.	FGMOLD
EUKILN	Kiln to bake ceramic molds. VOCs (wax fumes) controlled by an afterburner.	FGMOLD
EUVACWELDFURN1	Electric vacuum-weld melting furnace used to make titanium investment castings and billets. Equipped with a 10-micron particulate filter and oil demister.	FGVACWELDFURNS
EUVACWELDFURN2	Electric vacuum-weld melting furnace used to make titanium investment castings and billets. Equipped with a 10-micron particulate filter and oil demister.	FGVACWELDFURNS
EUMIM	Metal injection molding (MIM) process. Organic binder/wax and titanium powder are mixed and injected into a mold. Wax/binder is removed from green MIM parts in a debinding solution. Parts then move to an electric sintering oven with a natural gas fired afterburner.	NA

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.

**EUMIM
 EMISSION UNIT CONDITIONS**

DESCRIPTION

Metal injection molding (MIM) process. Organic binder/wax and titanium powder are mixed and injected into a mold. Wax/binder is removed from green MIM parts in aqueous debinding solution. Parts then move to an electric sintering oven with a natural gas fired afterburner.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

The electric sintering oven is controlled by a natural gas-fired afterburner.

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Solvent used to remove wax from parts	1,320 gallons per year	12-month rolling time period as determined at the end of each calendar month	EUMIM	SC VI.2	R 336.1225, R 336.1702(a)

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EUMIM unless a malfunction abatement plan (MAP) as described in Rule 911(2) for the natural gas-fired afterburner for the sintering oven has been submitted within 90 days of permit issuance and is implemented and maintained. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. 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. 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 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))**
2. The permittee shall handle all VOC and/or HAP containing materials, including coatings, reducers, solvents, and thinners, in a manner to minimize the generation of fugitive emissions. The permittee shall keep containers covered at all times except when operator access is necessary. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1702(a))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate the sintering oven of EUMIM unless an afterburner is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the afterburner includes maintaining a minimum temperature of 1400°F and a minimum retention time of 0.5 seconds. **(R 336.1224, R 336.1225, R 336.1702(a), 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 maintain a current listing from the manufacturer of the chemical composition of each solvent and binder used in EUMIM, 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. The permittee shall keep all records on file and make them available to the Department upon request. (R 336.1225, R 336.1702)
2. The permittee shall monitor and record, in a satisfactory manner, the volume, in gallons, of solvent used in EUMIM to remove wax from parts, and solvent reclaimed, on a monthly and 12-month rolling time period basis. The permittee shall complete all calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month. (R 336.1225, R 336.1702(a))
3. The permittee shall monitor and record, in a satisfactory manner, the afterburner temperature at least once per shift, when the sintering oven is in operation. (R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))

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. SVSINTER	7	24	R 336.1225, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENT(S)

NA

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
FGDRYERS	Two (2) natural gas rotary dryers processing titanium scrap (crushed turnings/"chips"). Both dryers have cyclone dust control and wet dust control.	EUDRYER1, EUDRYER2
FGFETIFURNS	Two (2) Inductotherm induction crucible furnaces for melting ferrotitanium. Rated for 2,500 lb/charge each. Located in the Melt Shop. Both furnaces are controlled by the Dostar baghouse.	EUFETIFURN1, EUFETIFURN2
FGFETICRUSHERS	Four (4) crushers processing ferrotitanium from FGFETIFURNS. EUFETICRUSH1 is located in the melt shop, and the other crushers are located in Warehouse 4. Wet scrubbers are used to control emissions.	EUFETICRUSH1, EUFETICRUSH2, EUFETICRUSH3, EUFETICRUSH4
FGPOWDER	Titanium powders production processes, including the hydride de-hydride (HDH) process equipment and the de-oxidation (DOSS) process equipment. Wet scrubbers control certain equipment, while other equipment is uncontrolled.	EUPOWDER, EUDOSS
FGMOLD	Ceramic mold production for investment castings, including the production of wax patterns, ceramic molds, wax removal, and kilning.	EUWAX, EUSANDERS, EUAUTOCLAVE, EUKILN
FGVACWELDFURNS	Two (2) electric vacuum-weld melting furnaces used to make titanium investment castings and billets. The furnaces are equipped with a 10-micron particulate filter and oil demister.	EUVACWELDFURN1, EUVACWELDFURN2
FGFUGDUST	Sources of fugitive dust at the facility, including but not limited to: storage, handling, and transport of bulk materials, emissions from roads and lots, and emissions from building openings.	NA

**FGDRYERS
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two (2) natural gas rotary dryers processing titanium scrap (crushed turnings/"chips"). Both dryers have cyclone dust control and wet dust control.

Emission Unit: EUDRYER1, EUDRYER2

POLLUTION CONTROL EQUIPMENT

EUDRYER1: cyclone and a Rotoclone wet scrubber.
 EUDRYER2: cyclone and a Sly venturi scrubber.

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Metals Processed	150,000 lbs per day	Calendar Day	EUDRYER1	SC VI.1	R 336.1205, R 336.1225, R 336.1301, 40 CFR 52.21(c) and (d)
2. Metal Processed	150,000 lbs per day	Calendar Day	EUDRYER2	SC VI.2	R 336.1205, R 336.1225, R 336.1301, 40 CFR 52.21(c) and (d)

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall not operate either dryer in FGDRYERS unless a malfunction abatement plan (MAP) as described in Rule 911(2) for the associated cyclone and wet scrubber has been submitted within 90 days of permit issuance and is implemented and maintained. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. 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. 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 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))**
- The permittee shall not operate EUDRYER1 unless a minimum water flow rate of 3.0 gallons per minute and a pressure drop between two to six inches water column across the Rotoclone wet scrubber is maintained. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**

3. The permittee shall not operate EUDRYER2 unless each of the two inlet liquid streams maintains a minimum water flow rate of 6.0 gallons per minute and a pressure drop between 10 to 30 inches water column across the wet venturi scrubber is maintained. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EUDRYER1 unless the cyclone and Rotoclone wet scrubber are installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**
2. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner, a device to monitor the water flow rate and a device to monitor the pressure drop for the EUDRYER1 Rotoclone wet scrubber on a continuous basis. Calibrations shall take place on a schedule specified in the MAP. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**
3. The permittee shall not operate EUDRYER2 unless the cyclone and wet venturi scrubber is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**
4. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner, a device to monitor the water flow rate and a device to monitor the pressure drop for the EUDRYER2 wet venturi scrubber on a continuous basis. Calibrations shall take place on a schedule specified in the MAP. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (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))**

1. The permittee shall monitor and record, in a satisfactory manner, the amount of metals processed in EUDRYER1 for each day that the unit is operated. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, 40 CFR 52.21)**
2. The permittee shall monitor and record, in a satisfactory manner, the amount of metals processed in EUDRYER2 for each day that the unit is operated. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, 40 CFR 52.21)**
3. The permittee shall monitor and record, in a satisfactory manner, the pressure drop and the water flow rate for the air pollution control equipment associated with EUDRYER1 and EUDRYER2 at least once per shift. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**
4. The permittee shall keep a record of all inspections and maintenance performed on any air emission control system associated with FGDRYERS. The permittee shall maintain this record on site and make it available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, 40 CFR 52.21)**

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. SVDRYER1	16	34	R 336.1225, 40 CFR 52.21(c) and (d)
2. SVDRYER2	10	34	R 336.1225, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENT(S)

NA

**FGFETIFURNS
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two (2) Inductotherm induction crucible furnaces for melting ferrotitanium. Rated for 2,500 lb/charge each. Located in the Melt Shop. Both furnaces are controlled by the Dustar baghouse.

Emission Unit: EUFETIFURN1, EUFETIFURN2.

POLLUTION CONTROL EQUIPMENT

40,000 cfm Dustar Baghouse shared by both furnaces.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. PM	1.84 lbs per hour	Hourly	FGFETIFURNS	SC V.1	R 331.1331(c)
2. PM	0.01 lb/1,000 lb exhaust gas	Hourly	FGFETIFURNS	SC V.1	R 331.1331(c)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Metals Processed	140,000 lbs per day	Calendar Day	FGFETIFURNS	SC VI.1	R 336.1301, R 331.1331(c)

2. The permittee shall only charge the furnaces with clean, dry scrap. (R 336.1205, R 336.1224, R 336.1225)
3. Applicant shall not charge the furnaces with pure nickel or chromium. (R 336.1205, R 336.1224, R 336.1225)
4. The permittee shall not use flux in FGFETIFURNS.¹ (R 336.1224, R 336.1225)

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate either furnace in FGFETIFURNS unless a malfunction abatement plan (MAP) as described in Rule 911(2) for the Dustar Baghouse has been submitted within 90 days of permit issuance and is implemented and maintained. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. 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. 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 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))
2. The permittee shall not operate either furnace of FGFETIFURNS unless a pressure drop between two to six inches water column across the baghouse is maintained. (R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))

3. The permittee shall keep the bay doors closed while tapping (pouring from) the furnaces of FGFETIFURNS. In addition, while charging and melting are occurring, the permittee shall keep the bay doors closed unless the doors are actively in use. **(R 336.1205, R 336.1301, R 336.1910, 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate either furnace of FGFETIFURNS unless the associated baghouse is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**
2. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner, a device to monitor the pressure drop across the baghouse on a continuous basis. Calibrations shall take place on a schedule specified in the MAP. The device shall be equipped with an alarm that indicates the occurrence of a pressure drop outside of the normal operating range of two to six inches water column. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**

V. TESTING/SAMPLING

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

1. Upon request from the AQD Supervisor, the permittee shall verify PM emission rates from FGFETIFURNS, by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 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. 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 336.1702, R 336.2001, R 336.2003, R 336.2004)**

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, in a satisfactory manner, the amount of metals processed in FGFETIFURNS on a daily basis. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, 40 CFR 52.21)**
2. The permittee shall monitor and record, in a satisfactory manner, the pressure drop across the baghouse associated with FGFETIFURNS at least once per shift. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**
3. The permittee shall keep a record of all inspections and maintenance performed on baghouse associated with FGFETIFURNS. The permittee shall maintain this record on site and make it available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, 40 CFR 52.21)**

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. SVFETIFURNS	50	80	40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

**FGFETICRUSHERS
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Four (4) crushers processing ferrotitanium from FGFETIFURNS. EUFETICRUSH1 is located in the melt shop, and the other crushers are located in Warehouse 4. Wet scrubbers are used to control emissions.

Emission Unit: EUFETICRUSH1, EUFETICRUSH2, EUFETICRUSH3, EUFETICRUSH4

POLLUTION CONTROL EQUIPMENT

EUFETICRUSH1 is controlled by a Tri-Mer 1,500 cfm wet scrubber.
 EUFETICRUSH2 and EUFETICRUSH3 are controlled by a single Tri-Mer 12,000 cfm wet scrubber.
 EUFETICRUSH4 is controlled by a Tri-Mer 6,000 cfm wet scrubber.

I. EMISSION LIMIT(S)

1. There shall be no visible emissions from vents or openings of the building housing EUFETICRUSH1. **(R 336.1225, R 336.1301)**
2. There shall be no visible emissions from vents or openings in the building housing EUFETICRUSH2, EUFETICRUSH3, and EUFETICRUSH4. **(R 336.1225, R 336.1301)**

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Materials Processed	160,000 lbs per day	Calendar Day	EUFETICRUSH1	SC VI.1	R 336.1205, R 336.1225, R 336.1301, 40 CFR 52.21(c) and (d)
2. Metals Processed	160,000 lbs per day	Calendar Day	EUFETICRUSH2	SC VI.1	R 336.1205, R 336.1225, R 336.1301, 40 CFR 52.21(c) and (d)
3. Metals Processed	86,400 lbs per day	Calendar Day	EUFETICRUSH3	SC VI.1	R 336.1205, R 336.1225, R 336.1301, 40 CFR 52.21(c) and (d)
4. Metals Processed	86,400 lbs per day	Calendar Day	EUFETICRUSH4	SC VI.1	R 336.1205, R 336.1225, R 336.1301, 40 CFR 52.21(c) and (d)

5. The permittee shall not process ferrotitanium with more than two percent by weight nickel, or more than six percent by weight vanadium, in any crusher of FGFETICRUSHERS.¹ **(R 336.1224, R 336.1225)**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate any crusher in FGFETICRUSHERS unless a malfunction abatement plan (MAP) as described in Rule 911(2) for the associated wet scrubber has been submitted within 90 days of permit issuance and is implemented and maintained. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. 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. 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 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))**
2. The permittee shall keep doors closed when not in use, for the building housing EUFETICRUSH1. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, 40 CFR 52.21(c) and (d))**
3. The permittee shall keep doors closed when not in use, for the building housing EUFETICRUSH2, EUFETICRUSH3, and EUFETICRUSH4. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, 40 CFR 52.21(c) and (d))**
4. The permittee shall not operate a crusher in FGFETICRUSHERS unless a pressure drop of seven to eight inches water column across the associated wet scrubber is maintained. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any crusher in FGFETICRUSHERS unless the associated wet scrubber is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**
2. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner, a device to monitor the pressure drop of each wet scrubber associated with FGFETICRUSHERS on a continuous basis. Calibrations shall take place on a schedule specified in the MAP. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (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))**

1. The permittee shall monitor and record, in a satisfactory manner, the amount of materials processed in each crusher in FGFETICRUSHERS, for each calendar day that the unit is operated. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, 40 CFR 52.21)**
2. The permittee shall maintain a current listing of the composition of ferrotitanium processed in FGFETICRUSHERS, including the weight percent of each metal. The data may consist of Material Safety Data Sheets, manufacturer's formulation data, or both as deemed acceptable by the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request.¹ **(R 336.1225)**
3. The permittee shall monitor and record, in a satisfactory manner, the pressure drop across each wet scrubber associated with FGFETICRUSHERS at least once per shift. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**

4. The permittee shall keep a record of all inspections and maintenance performed on the wet scrubbers associated with FGFETICRUSHERS. The permittee shall maintain this record on site and make it available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, 40 CFR 52.21)**
5. The permittee shall verify the presence of visible emissions by taking six-minute visible emission readings a minimum of once per week, for fugitive emissions from the building housing EUFETICRUSH1, and for fugitive emissions from the building housing EUFETICRUSH2, EUFETICRUSH3, and EUFETICRUSH4. Either a certified or non-certified reader shall take each visible emission reading during routine operating conditions. Multiple vents or building openings may be observed simultaneously. If the permittee observes any visible emissions, the permittee shall immediately implement the following procedures: **(R 336.1225, R 336.1301)**
 - a) The permittee shall perform the six-minute visible emission readings at least once every 30 minutes until emissions are no longer visible or until emissions have been observed for more than two hours.
 - b) If visible emissions have been observed for more than two hours, a certified reader shall determine the opacity using Federal Reference Test Method 9 **(40 CFR Part 60, Appendix A)**.
 - c) If visible emissions are observed, the permittee shall immediately initiate corrective actions. **(R 336.1301, R 336.1303)**
6. The permittee shall keep, in a satisfactory manner, records of all visible emission readings for FGFETICRUSHERS. At a minimum, records shall include the date, time, name of observer/reader, whether the reader is certified, and status of visible emissions. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1301, R 336.1303)**

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. SVFETICRUSH1	10	40	R 336.1225, 40 CFR 52.21(c) and (d)
2. SVFETICRUSH2-3	23	16	R 336.1225, 40 CFR 52.21(c) and (d)
3. SVFETICRUSH4	22	16	R 336.1225, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

**FGPOWDER
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Titanium powders production processes, including the hydride de-hydride (HDH) process equipment and the de-oxidation (DOSS) process equipment. Wet scrubbers control certain equipment, while other equipment is uncontrolled.

Emission Unit: EUPOWDER, EUDOSS.

POLLUTION CONTROL EQUIPMENT

A powder crushing terminator and rod mill crusher, a terminator, two (2) powder crushing attrition mills, and screeners are controlled by the AER HazDust wet scrubber (5,000 cfm).

An impact mill, a powder crushing attrition mill, powder granulating and screening, and powder blending are controlled by the Tri-Mer 10-M wet scrubber (1,000 cfm).

An impact mill, (2) attrition mills, (2) terminator mills, and blending operations are controlled by the Schubert wet scrubber (6,000 cfm).

Two (2) electrically heated vacuum furnaces, the dilute HCl water bath, and several closed-system powder screeners are uncontrolled.

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Metal processed	2,400 lbs per day	Calendar Day	EUPOWDER	SC VI.1	R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d)
2. Metal processed	923 lbs per day	Calendar Day	EUDOSS	SC VI.2	R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d)
3. Metal processed	600,000 lbs per year	12-month rolling time period as determined at the end of each calendar month	EUPOWDER	SC VI.3	R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d)
4. Metal processed	240,000 lbs per year	12-month rolling time period as determined at the end of each calendar month	EUDOSS	SC VI.4	R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d)

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate the equipment in FGPOWDER unless a malfunction abatement plan (MAP) as described in Rule 911(2) for the control devices (AER HazDust wet scrubber, Tri-Mer 10-M wet scrubber, and Schubert wet scrubber) has been submitted within 90 days of permit issuance and is implemented and maintained. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. 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. 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 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate process equipment of FGPOWDER unless the associated control device is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes operating the control device pressure drop within the specified range. The equipment, associated control devices, and acceptable pressure drop ranges are listed below. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**

	Equipment	Control device	Pressure Drop
a)	A powder crushing terminator, rod mill crusher, and powder crushing attrition mills	AER HazDust wet scrubber (5,000 cfm)	6-8 inches water column
b)	A powder crushing attrition mill, powder granulating and screening, and powder blending	Tri-Mer 10-M wet scrubber (1,000 cfm)	7-8 inches water column
c)	An impact mill, (2) attrition mills, (2) terminator mills, and blending operations	Schubert wet scrubber (6,000 cfm)	2-3 inches water column
d)	Two (2) electrically heated vacuum furnaces, the dilute HCl water bath, and several closed-system powder screeners	NA (No control device)	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. The permittee shall monitor and record, in a satisfactory manner, the total weight of metals entering the EUPOWDER process for each calendar day that the equipment is operated. **(R 336.1205, R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d))**
2. The permittee shall monitor and record, in a satisfactory manner, the total weight of metals entering the EUDOSS process for each calendar day that the equipment is operated. **(R 336.1205, R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d))**

3. The permittee shall monitor and record, in a satisfactory manner, the amount of metals processed in EUPOWDER on a monthly and 12-month rolling time period basis. The permittee shall complete all calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month. **(R 336.1205, R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d))**
4. The permittee shall monitor and record, in a satisfactory manner, the amount of metals processed in EUDOSS on a monthly and 12-month rolling time period basis. The permittee shall complete all calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month. **(R 336.1205, R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d))**
5. The permittee shall monitor and record, in a satisfactory manner, the pressure drop for each wet scrubber associated with FGPOWDER at least once per shift. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**
6. The permittee shall keep a record of all inspections and maintenance performed on any air emission control system associated with FGPOWDER. The permittee shall maintain this record on site and make it available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, 40 CFR 52.21)**
7. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee shall maintain a current listing of all equipment and associated control devices in FGPOWDER. The permittee shall maintain this record on site and make it available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, 40 CFR 52.21)**

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 EUDOSS. **(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. SVTRIMER10M	6	22	R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d)
2. SVHAZDUST	18	30	R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d)
3. SVHDFURN1	6	36	R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d)
4. SVHDFURN2	6	36	R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d)
5. SVSCHUBERT	30	18.5	R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENT(S)

NA

FGMOLD FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Ceramic mold production for investment castings, including the production of wax patterns, ceramic molds, wax removal, and kilning.

Emission Unit: EUWAX, EUSANDERS, EUAUTOCLAVE, EUKILN.

POLLUTION CONTROL EQUIPMENT

EUWAX is uncontrolled and emits in-plant.
EUSANDERS is controlled by an AGET cyclone dust collector.
EUAUTOCLAVE is uncontrolled.
EUKILN is controlled by a natural gas-fired afterburner.

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EUSANDERS or EUKILN unless a malfunction abatement plan (MAP) as described in Rule 911(2) for the associated control device (AGET cyclone dust collector for EUSANDERS and natural gas-fired afterburner for EUKILN) has been submitted within 90 days of permit issuance and is implemented and maintained. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. 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. 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 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

2. The permittee shall not operate EUKILN unless an afterburner is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the afterburner includes maintaining a minimum temperature of 1400°F and a minimum retention time of 0.5 seconds. **(R 336.1224, R 336.1225, R 336.1702(a), R 336.1910)**
3. The permittee shall not operate EUSANDERS unless the associated cyclone dust collector is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (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))

1. The permittee shall monitor and record, in a satisfactory manner, the EUKILN afterburner temperature at least once per shift, when EUKILN is in operation. (R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))
2. The permittee shall keep a record of all inspections and maintenance performed on the cyclone dust collector for EUSANDERS and the natural gas-fired afterburner for EUKILN. The permittee shall maintain this record on site and make it available to the Department upon request. (R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1702(a), R 336.1910, 40 CFR 52.21)

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. SVSANDERS	Unrestricted	Unrestricted	NA
2. SVAUTOCLAVE	Unrestricted	Unrestricted	NA
3. SVKILN	14 x 16 ¹	24 ¹	R 336.1224, R 336.1225

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

**FGVACWELDFURNS
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two (2) electric vacuum-weld melting furnaces used to make titanium investment castings and billets. The furnaces are equipped with a 10-micron particulate filter and oil demister.

Emission Unit: EUVACWELDFURN1, EUVACWELDFURN2.

POLLUTION CONTROL EQUIPMENT

A 10-micron particulate filter and oil demister are shared by both furnaces.

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Titanium electrode (metal charged to furnace)	100.0 lbs/heat	Per operating cycle	Each furnace in FGVACWELDFURNS	SC VI.1	R 336.1205, R 336.1225, 40 CFR 52.21(c) and (d)
2. Titanium charged to the furnace	600 tpy	12-month rolling time period as determined at the end of each calendar month	FGVACWELDFURNS	SC VI.2	R 336.1205, R 336.1225, 40 CFR 52.21(c) and (d)

3. The permittee shall melt less than 600 tons of metal(s) in FGVACWELDFURNS per calendar year. This condition is necessary to avoid requirements of the National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries. **(40 CFR Part 63, Subpart ZZZZZZ)**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only charge titanium to FGVACWELDFURNS that is free of oil, rubber, paint, or other contamination. **(R 336.1225, R 336.1702)**
2. The permittee shall not melt in both furnaces of FGVACWELDFURNS simultaneously. **(R 336.1225, 40 CFR 52.21(c) and (d))**
3. The permittee shall not operate the furnaces in FGVACWELDFURNS unless a malfunction abatement plan (MAP) as described in Rule 911(2) for the associated particulate filter and oil demister has been submitted within 90 days of permit issuance and is implemented and maintained. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. 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. 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 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate the furnaces in FGVACWELDFURNS unless the associated particulate filter and oil demister is installed, maintained, and operated in a satisfactory manner. (R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))
2. The permittee shall install and maintain a scale to measure the metal before it is charged to furnaces of FGVACWELDFURNS. (R 336.1205, R 336.1225, 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))

1. The permittee shall monitor and record, in a satisfactory manner, the weight of metal charged to each furnace in FGVACWELDFURNS for each operating cycle (heat). (R 336.1205, R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d))
2. The permittee shall monitor and record, in a satisfactory manner, the annual melt production of FGVACWELDFURNS on a monthly and 12-month rolling time period basis. The permittee shall complete all calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month. (R 336.1205, R 336.1224, R 336.1225, 40 CFR 52.21(c) and (d))
3. The permittee shall keep a record of all inspections and maintenance performed on the particulate filters and oil demisters associated with FGVACWELDFURNS. The permittee shall maintain this record on site and make it available to the Department upon request. (R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, 40 CFR 52.21)

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. SVVACWELDFURNS	3	24	R 336.1225, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENT(S)

NA

FGFUGDUST FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Sources of fugitive dust at the facility, including but not limited to: storage, handling, and transport of bulk materials, emissions from roads and lots, and emissions from building openings.

Emission Unit: NA

POLLUTION CONTROL EQUIPMENT

Various control strategies may be used, as necessary.

I. EMISSION LIMIT(S)

1. The permittee shall not cause or allow the emission of fugitive dust from any road, lot, or storage pile, including any material handling activity at a storage pile, that has an opacity greater than five percent as determined by Reference Test Method 9d. **(Act 451, 324.5524(2))**
2. The permittee shall not cause or allow the emission of fugitive dust from any fugitive dust source other than those listed in SC I.1 that has an opacity greater than 20 percent as determined by Reference Test Method 9d. The provisions of this subsection shall not apply to storage pile material handling activities when wind speeds are in excess of 25 miles per hour (40.2 kilometers per hour). **(Act 451, 324.5524(2))**

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Within 90 days of permit issuance, the permittee shall prepare and submit an operating program for fugitive dust control to the AQD District Supervisor for review and approval or disapproval. Such an operating program shall be designed to significantly reduce the fugitive dust emissions to the lowest level that a particular source is capable of achieving by the application of control technology that is reasonably available, considering technological and economic feasibility. The operating program shall be implemented for all fugitive dust sources at the facility. The operating program shall be amended by the permittee so that the operating program is current and reflects any significant change in the fugitive dust source or fugitive dust emissions. An amendment to an operating program shall be submitted to the AQD District Supervisor for its review and approval or disapproval. The initially submitted program and any subsequent amendments shall be considered approved if not acted on by the department within 90 days of submittal. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, Act 451, 324.5524(4) and (7), 40 CFR 52.21(c) and (d))**
2. At a minimum, the operating program required by SC III.1 shall include all of the following: **(Act 451, 324.5524(5))**
 - (a) The name and address of the facility.
 - (b) The name and address of the owner or operator responsible for implementation of the operating program.
 - (c) A map or diagram of the facility showing all of the following:
 - (i) Approximate locations of storage piles.
 - (ii) Conveyor loading operations.
 - (iii) All traffic patterns within the facility.
 - (d) The location of unloading and transporting operations with pollution control equipment.
 - (e) A detailed description of the best management practices utilized to achieve compliance with this section, including an engineering specification of particulate collection equipment, application systems for water, oil, chemicals, and dust suppressants utilized, and equivalent methods utilized.

- (f) A test procedure, including record keeping, for testing all waste or recycled oils used for fugitive dust control for toxic contaminants.
 - (g) The frequency of application, application rates, and dilution rates if applicable, of dust suppressants by location of materials.
 - (h) The frequency of cleaning paved traffic pattern roads and parking facilities.
 - (i) Other information as may be necessary to facilitate the department's review of the operating program.
3. The permittee shall follow the Requirements and Guidance for the Operating Program for Fugitive Dust Control as listed in Appendix A, when preparing the operating program required by SC III.1. **(R 336.1371)**

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. The permittee shall keep, in a satisfactory manner, a record of all fugitive dust control measures taken according to the operating program for fugitive dust control. The permittee shall maintain this record on site and make it available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1371, Act 451, 324.5524(4), (5) and (7), 40 CFR 52.21(c) and (d))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

APPENDIX A

Requirements and Guidance for the Operating Program for Fugitive Dust Control

The permittee is subject to the provisions of Rule 371(2) (R 336.1372(2)) of the Air Pollution Control Rules. Rule 371 requires a fugitive dust control program to provide for all of the following:

- a) Using 1 or more combinations of available technologies, operating practices, or methods listed in R 336.1372 [Rule 372, see below] as are reasonably necessary to control fugitive dust emissions.
- b) Consideration of the quantity, moisture content, specific gravity, and the particle size distribution of the bulk materials. The more friable, drier, lighter, and finer the bulk material is, the more effective the fugitive dust control methods incorporated into the control program shall be.
- c) The keeping and maintenance of records consistent with the various activities to be implemented under the control program.
- d) Identification of the control technologies, methods, or control equipment, if any, to be implemented or installed and the schedule, including increments of progress, for implementation or installation.

Rule 372 (R 336.1372) lists required activities and typical control methods for a fugitive dust control program. The rule covers the following sources of fugitive dust:

- Loading or unloading of open storage piles of bulk materials.
- Transporting of bulk materials.
- Outdoor conveying of bulk materials.
- Roads and lots.
- Inactive storage piles.
- Building ventilation.
- Construction, renovation, or demolition activities.

The full text of Rule 372 is attached and can also be found at:

https://dtmb.state.mi.us/ARS_Public/AdminCode/AdminCode

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
AIR POLLUTION CONTROL**

(By authority conferred on the Director of the Department of Environmental Quality by Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.5501 to 324.5542)

PART 3. EMISSION LIMITATIONS AND PROHIBITIONS—PARTICULATE MATTER

R 336.1372 Fugitive dust control program; required activities; typical control methods.

Rule 372. (1) A fugitive dust control program which is required by R 336.1371 and which deals with 1 or more of the fugitive dust sources listed in this rule may include any of the typical control methods listed in this rule for that source.

(2) The following provisions apply to the loading or unloading of open storage piles of bulk materials as a source of fugitive dust:

- (a) Open storage piles of bulk materials, hereinafter referred to as “piles,” which meet any of the following 3 conditions need not be included in a fugitive dust control program:
 - (i) All piles of the same material at a manufacturing or commercial location which have a total volume of less than 100 cubic meters (131 yards³).
 - (ii) Any piles at a manufacturing or commercial location if the total annual volumetric throughput of all the stored material at the site is less than 10,000 cubic meters (13,100 yards³).
 - (iii) Any single pile at a manufacturing or commercial location that has a volume of less than 42 cubic meters (55 yards³).
- (b) Typical control methods for controlling fugitive emissions resulting from the loading or unloading of piles may include, but are not limited to, the following:
 - (i) Completely enclosing the pile within a building furnished with department approved air pollution control equipment.
 - (ii) Using pneumatic conveying or telescopic chutes.
 - (iii) Spraying the working surface of the pile with water or dust-suppressant compound.
 - (iv) Directing engine exhaust gases that are generated by the machine used on the piles for loading or unloading upwards.
 - (v) Minimizing the drop distance from which the material is discharged into the pile. The drop distance shall be specified in the control program.
 - (vi) Periodic removal of spilled material in areas within 100 meters (328 feet) from the pile. The frequency of removal shall be specified in the control program.

(3) All of the following provisions apply to the transporting of bulk materials as a source of fugitive dust:

- (a) Trucks which have less than a 2-ton capacity that are used to transport sand, gravel, stones, peat, and topsoil are exempt from the provisions of this subrule.
- (b) Typical control methods for controlling fugitive emissions resulting from the transporting of bulk materials by truck may include, but are not limited to, the following:
 - (i) Completely covering open-bodied trucks.
 - (ii) Cleaning the wheels and the body of each truck to remove spilled materials after the truck has been loaded.
 - (iii) Use of completely enclosed trucks.

- (iv) Tarping the truck when operating empty if residue has not been completely removed after emptying.
- (v) Cleaning the residue from the inside of the truck after emptying.
- (vi) Loading trucks so that no part of the load making contact with any sideboard, side panel, or rear part of the load enclosure comes within 6 inches of the top part of the enclosure.
- (vii) Maintaining tight truck bodies so that leakages within the body will be eliminated and future leakages prevented.
- (viii) Spraying the material being transported in a vehicle with a dust suppressant. The frequency of spraying shall be specified in the control program.
- (ix) Restricting the speed of the vehicle which transports the material. The speed of the vehicle shall be specified in the control program.

(4) The following provision applies to outdoor conveying as a source of fugitive dust: Typical control methods for controlling fugitive emissions resulting from conveying bulk materials may include, but are not limited to, the following:

- (a) Completely enclosing all conveyor belts and equipping them with belt wipers and hoppers of proper size to prevent excessive spills.
- (b) Enclosing transfer points and, if necessary, exhausting them to a baghouse or similar control device at all times when the conveyors are in operation.
- (c) Equipping the conveyor belt with not less than 210-degree enclosures.
- (d) Restricting the speed of conveyor belts. The belt speed shall be specified in the control program.
- (e) Periodically cleaning the conveyor belt to remove the residual material. The frequency of cleaning shall be specified in the control program.
- (f) Minimizing the distance between transfer points. The distance between transfer points shall be specified in the control program.
- (g) Removing the spilled material from the ground under conveyors. The frequency of removal shall be specified in the control program.

(5) The following provisions apply to roads and lots as sources of fugitive dust:

- (a) Roads and lots which are located within industrial, commercial, and government owned facilities and which meet the following 2 conditions are not subject to the requirement of submitting a fugitive dust control program:
 - (i) The traffic volume is less than 10 vehicles per day on a monthly average.
 - (ii) The lots are less than 500 square meters (5,382 feet²) in area.
- (b) Typical control methods for controlling fugitive emissions resulting from roads and lots located within industrial, commercial, and government-owned facilities may include, but are not limited to, the following:
 - (i) Paving roads and parking lots with a hard material, such as concrete, asphalt, or an equivalent which is approved by the department.
 - (ii) Mechanically cleaning paved surfaces by vacuum sweeping, wet sweeping, or flushing. The frequency of cleaning shall be specified in the control program.
 - (iii) Washing the wheels of every truck leaving the plant premises.
 - (iv) Treating the roads and lots with oil or a dust-suppressant compound which is approved by the department. The frequency of application shall be specified in the control program.
 - (v) Periodically maintaining off-road surfaces with gravel where trucks have frequent access. The frequency of maintenance shall be specified in the control program.

(6) The following provisions apply to inactive storage piles as sources of fugitive dust:

- (a) Inactive storage piles that are less than or equal to 500 cubic meters (654 yards³) in volume are not subject to the requirement of submitting a fugitive dust control program.
- (b) Typical control methods for controlling fugitive emissions resulting from inactive storage piles may include, but are not limited to, the following:
 - (i) Completely covering the pile with tarpaulin or other material approved by the department.
 - (ii) Completely enclosing the pile within a building.
 - (iii) Enclosing the pile with not less than 3 walls so that no portion of the stored material is higher than the walls.
 - (iv) Periodically spraying the piles with water or other dust-suppressant compound approved by the department. The frequency of application shall be specified in the control program.
 - (v) Growing vegetation on and around the pile.

(7) The following provisions apply to building ventilation as a source of fugitive dust:

- (a) This subrule is applicable to all of the following:
 - (i) Ferrous and nonferrous foundries.
 - (ii) Electric arc furnaces, blast furnace casthouses, sinter plants, and basic oxygen processes at iron and steel production facilities.
 - (iii) Metal heat treating.
 - (iv) Metal forging.
 - (v) Bulk material handling, storage, drying, screening, and crushing.
 - (vi) Metal fabricating and welding.
 - (vii) Briquetting, sintering, and pelletizing operations.
 - (viii) Machining and pressing of metal.
 - (ix) Stone, clay, and glass production.
 - (x) Lime, cement, and gypsum production.
 - (xi) Chemical and allied product production.
 - (xii) Asphalt and concrete mixing operations.
- (b) Typical control methods for controlling fugitive emissions resulting from building openings, such as roof monitors, powered and unpowered ventilators, doors, windows, and holes in the building structure integrity, may include, but are not limited to, the following:
 - (i) Exhausting the entire building to a dust collection system which is acceptable to the department.
 - (ii) Using local hoods connected to a dust collection system to capture emissions within the building.
 - (iii) Establishing and maintaining operating procedures and internal housekeeping practices (specify details).
 - (iv) Installing removable filter media across the vent openings.

(8) The following provisions apply to fugitive dust emissions from construction, renovation, or demolition activities located in priority I areas:

- (a) This subrule is applicable to the owner or prime contractor, except for those owners or prime contractors who construct, renovate, or demolish less than 12 single family dwelling units per year.
- (b) Typical control methods for controlling fugitive dust emissions from construction, renovation, or demolition activities may include, but are not limited to, the following:
 - (i) Spraying of all work areas with water or other dust-suppressant compound which is approved by the department.
 - (ii) Completely covering the debris, excavated earth, or other airborne materials with tarpaulin or any other material which is approved by the department.
 - (iii) Any other method acceptable to the department.