

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

APRIL 13, 2021

**PERMIT TO INSTALL
91-17B**

**ISSUED TO
OERLIKON METCO**

**LOCATED AT
41144 CONCEPT DRIVE
PLYMOUTH, MICHIGAN 48170**

**IN THE COUNTY OF
WAYNE**

**STATE REGISTRATION NUMBER
P0824**

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: March 8, 2021	
DATE PERMIT TO INSTALL APPROVED: April 13, 2021	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 conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of 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
EUCONSARCALLOY	<p>Vacuum Induction melting and Gas Atomization furnace, Consarc. 2,000 lb induction furnace heats metals to melting (design temperature 1600 to 1900°C); liquid metal transfer to a tundish, which feeds a high pressure nozzle using argon gas to atomize the metal.</p> <p>The metal cools to a powder (about 300°C) in the atomization tower and passes through a process cyclone for collection in a hopper.</p> <p>Gas continues through the Argon Recovery System and multi-stage dust collection system with HEPA filter. The Alloy Central Vacuum System, which also connects to the multi-stage baghouse with HEPA filter, is used for standard cleanup and spills.</p>	FGALLOY
EUVIGAALLOY	<p>Vacuum Induction melting and Gas Atomization furnace, VIGA35. 500 lb induction furnace heats metals to melting (design temperature 1600 to 1900°C); liquid metal transfer to a tundish, which feeds a high pressure nozzle using argon gas to atomize the metal.</p> <p>The metal cools to a powder (about 300°C) in the atomization tower and passes through a process cyclone for collection in a hopper.</p> <p>Gas continues through the Argon Recovery System and multi-stage dust collection system with HEPA filter. The Alloy Central Vacuum System, which also connects to the multi-stage baghouse with HEPA filter, is used for standard cleanup and spills.</p>	FGALLOY
EUSPHEROTITANIUM	<p>Plasma Sheroidization of titanium powder in a TEKNA80 system.</p> <p>Crushed hydride-dehydride (HDH) Titanium powder is liquefied in an inductively coupled plasma (ICP) torch with a nozzle that feeds a water-cooled stainless steel processing chamber. Argon gas is used in this process.</p> <p>Spherical titanium production is a closed loop system with no emissions. Spherical titanium product passes through a process cyclone for collection in a hopper.</p> <p>Process gas continues through a separate Argon Recovery System.</p> <p>For standard cleanup and spills an internal individual mineral bath vacuum will be used with no external stack.</p>	FGTITANIUM

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Flexible Group ID
EUEIGATITANIUM1	Electrode Induction melting with Gas Atomization. TEKNA 200 system. A titanium electrode is fed into an induction coil for melting. The liquid metal feeds a high pressure nozzle using argon gas to atomize the metal. The metal cools to a powder in the atomization tower and passes through a process cyclone for collection in a hopper. EIGA titanium production is a closed loop system with no emissions. Process gas continues through a separate Argon Recovery System. For standard cleanup and spills an internal individual mineral bath vacuum will be used with no external stack.	FGTITANIUM
EUSCRNBLENDAALLOY	Screening for size and blending of alloy product powder material to meet customer specifications is performed under an argon blanket with particulate and argon emitted into the facility ventilation system. The Alloy Central Vacuum System with a multi-stage baghouse collector with HEPA filter is used for standard cleanup and spills.	FGALLOY
EUSCRNBLNDPKTTNM	Screening for size and blending of titanium product powder material to meet customer specifications is performed under an argon blanket with argon emitted into the facility ventilation system. Packing is under an argon blanket also because titanium less than 100 microns is hazardous (explosion hazard). The Alloy Central Vacuum System, which connects to the multi-stage baghouse with HEPA filter, is used for standard cleanup and spills.	FGTITANIUM
EULABS	Research and Development materials usage.	NA
EUEMERGEN	A 60 HP natural gas-fueled emergency engine manufactured in 2017.	NA
EUCLADDING	Clad-composite powder production line that includes three (3) 200-gallon hot oil jacketed mixing bowls and the clad-composite screening operations.	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.

**EUEMERGEN
 EMISSION UNIT CONDITIONS**

DESCRIPTION

Emergency Engine subject to 40 CFR 60 Subpart JJJJ and 40 CFR 63 Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE).

New/Reconstructed emergency engine < 25 HP and > 100 HP constructed on or after June 12, 2006.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

The engine is a certified engine with associated required controls.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. HC +NO _x	10 g/HP-hr	Continuous	EUEMERGEN	SC IV.1, SC V.1	40 CFR 60.4233(d) (Table 1)
2. CO	387 g/HP-hr	Hourly	EUEMERGEN	SC IV.1, SC V.1	40 CFR 60.4233(d) (Table 1)

II. MATERIAL LIMIT(S)

1. The permittee shall burn only pipeline quality natural gas in EUEMERGEN. **(R 336.1205(1)(a), R 336.1702, 40 CFR 60.4230, 40 CFR 60.4248)**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance/malfunction abatement plan (PM/MAP) for EUEMERGEN. After approval of the PM/MAP by the AQD District Supervisor, the permittee shall not operate EUEMERGEN unless the PM/MAP, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained. The plan shall incorporate procedures recommended by the equipment manufacturer, and incorporate standard industry practices. At a minimum, the plan shall include:
 - a) Identification of the equipment and, if applicable, air-cleaning device and the supervisory personnel responsible for overseeing the inspection, maintenance, and repair.
 - b) Description of the items or conditions to be inspected and frequency of the inspections or repairs.
 - c) Identification of the equipment and, if applicable, air-cleaning device, operating parameters that shall be monitored to detect a malfunction or failure, the normal operating range of these parameters and a description of the method of monitoring or surveillance procedures.
 - d) Identification of the major replacement parts that shall be maintained in inventory for quick replacement.
 - e) 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 the plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the owner or operator shall revise the plan within 45 days after such an event occurs and submit the revised plan for approval to the AQD District Supervisor. Should the AQD determine the PM/MAP to be inadequate, the AQD District Supervisor may request modification of the plan to address those inadequacies. **(R 336.1205, R 336.1702(a), R 336.1910, R 336.1911, R 336.1912)**

2. The permittee may operate EUEMERGEN for no more than 100 hours per calendar year for the purpose of necessary maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The permittee may petition the Department for approval of additional hours to be used for maintenance checks and readiness testing. A petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency internal combustion engines beyond 100 hours per calendar year. **(40 CFR 60.4243(d)(2))**
3. EUEMERGEN may operate up to 50 hours per calendar year in non-emergency situations, but those 50 hours are counted towards the 100 hours per calendar year provided for maintenance and testing as provided in 40 CFR 60.4243(d)(2). The 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for the permittee to supply non-emergency power as part of a financial arrangement with another entity. **(40 CFR 60.4243(d)(3))**
4. The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:
 - a) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.
 - b) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
 - c) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
 - d) The power is provided only to the facility itself or to support the local transmission and distribution system.
 - e) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching. **(40 CFR 60.4243(d)(3)(i))**
5. The permittee shall operate and maintain EUEMERGEN such that it meets the emission limits in SC I.1 over the entire life of the engine. **(40 CFR 60.4234, 40 CFR 60.4243(b))**
6. If the permittee purchased a certified engine, according to procedures specified in 40 CFR Part 60 Subpart JJJJ, for the same model year, the permittee shall meet the following requirements for EUEMERGEN:
 - a) Operate and maintain the certified engine and control device according to the manufacturer's emission-related written instructions,
 - b) Keep a maintenance plan and the permittee may only change those engine settings that are permitted by the manufacturer. If you do not operate and maintain the certified engine and control device according to the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine, and
 - c) Meet the requirements as specified in 40 CFR 1068 Subparts A through D.

If the permittee does not operate and maintain the certified engine and control device according to the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and be subject to SC III.5. **(40 CFR 60.4243(b)(1))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. EUEMERGEN shall be certified to meet the applicable emission standard of 40 CFR 60.4233. The permittee shall install and configure each engine according to the manufacturer's specifications. **(40 CFR 60.4243)**
2. The permittee shall equip and maintain EUEMERGEN with a non-resettable hour meter to track the operating hours. **(R 336.1205(1)(a)&(b), R 336.1225, R 336.1702, R 336.2810, 40 CFR 60.4237)**
3. The nameplate capacity of EUEMERGEN shall not exceed 100 HP, as certified by the equipment manufacturer. **(R 336.1205(1)(a)&(b), 40 CFR 60.4230)**

V. TESTING/SAMPLING

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

1. If EUEMERGEN is not installed, configured, operated, and maintained according to the manufacturer's emission-related written instructions, or the permittee changes emission-related settings in a way that is not permitted by the manufacturer, the permittee must demonstrate compliance as follows:
 - a) Conduct an initial performance test to demonstrate compliance with the applicable emission standards in 40 CFR 60.4233(e), within 60 days after achieving the maximum production rate at which EUEMERGEN will be operated, but not later than 180 days after initial startup of EUEMERGEN, or within 1 year after EUEMERGEN is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after changing emission-related settings in a way that is not permitted by the manufacturer.
 - b) If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4244.
 - c) Conduct subsequent performance testing every 8,760 hours of engine operation or every 3 years, whichever comes first, thereafter, to demonstrate compliance with the applicable emission standards.

If a performance test is required, no less than 30 days prior to testing, a complete test plan shall be submitted to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of 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(a), R 336.2001, R 336.2003, R 336.2004, , 40 CFR 60.8, 40 CFR 60.4243, 40 CFR 60.4244, 40 CFR 60.4245, 40 CFR Part 60 Subpart JJJJ)**

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 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(1)(a) & (3), R 336.1702,)**
2. The permittee shall keep, in a satisfactory manner, a record of testing required in SC V.1, or manufacturer certification documentation indicating that EUEMERGEN meets the applicable emission limitations contained in the federal Standards of Performance for New Stationary Sources 40 CFR Part 60 Subpart JJJJ. The permittee shall keep all records on file and make them available to the Department upon request. **(40 CFR 60.4245)**
3. The permittee shall monitor and record the hours of operation of EUEMERGEN during emergencies and non-emergencies, on a monthly, 12-month rolling, and calendar year basis, in a manner acceptable to the District Supervisor, Air Quality Division. The permittee shall record the time of operation of EUEMERGEN and the reason it was in operation during that time. **(R 336.1205(1)(a) & (3), 40 CFR 60.4243)**

VII. REPORTING

1. Except as provided in R 336.1285, if EUEMERGEN is replaced with an equivalent-emitting or lower-emitting engine, the permittee shall notify the AQD District Supervisor of such change-out and submit acceptable emissions data to show that the alternate engine is equivalent-emitting or lower-emitting. The data shall be submitted within 30-days of the engine change out. **(R 336.1205, R 336.1702(a), R 336.1911)**
2. The permittee shall submit the following notifications if EUEMERGEN is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in 40 CFR 60.4243(d)(3)(i) the permittee must submit and annual report including the following:
 - a) The company name and address where the engine is located;
 - b) Date of the report and beginning and ending dates of the reporting period;
 - c) Engine site rating and model year;
 - d) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place;

- e) Hours spent for operation for the purposes specified in §60.4243(d)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in §60.4243(d)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine; **(40 CFR 60.4245(e), 40 CFR Part 60 Subparts A and JJJJ)**
- 3. The permittee shall submit a notification specifying whether EUEMERGEN will be operated in a certified or a non-certified manner to the AQD District Supervisor, in writing, within 30 days following the initial startup of the engine and within 30 days of switching the manner of operation. **(R 336.1201(3))**

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. SVEMERGEN	6	10	R 336.1225

IX. OTHER REQUIREMENT(S)

- 1. The permittee shall comply with the provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subpart A and Subpart JJJJ, as they apply to EUEMERGEN. **(40 CFR Part 60 Subparts A & JJJJ, 40 CFR 63.6590)**
- 2. The permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63 Subpart A and Subpart ZZZZ, as they apply to EUEMERGEN, upon startup. **(40 CFR Part 63 Subparts A and ZZZZ, 40 CFR 63.6595)**

Footnotes:

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

**EUCLADDING
 EMISSION UNIT CONDITIONS**

DESCRIPTION

Clad-composite powder production line that includes three (3) 200-gallon hot oil jacketed mixing bowls and the clad-composite screening operations.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

12,000 cfm cartridge dust collector system with a 99.9% separation efficiency down to 0.5 microns.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.03 lb per 1000 lbs of gas*	Hourly	EUCLADDING	SC V.1	R 336.1331

* Calculated on a wet gas basis

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Raw Clad-Composite Material	1,750 lb/batch	4-hour Batch	EUCLADDING	SC VI.2	R 336.1205(1)(a), 336.1225
2. Raw Clad-Composite Material	500,000 lb/yr	12-month rolling time period as determined at the end of each calendar month	EUCLADDING	SC VI.2	R 336.1205(1)(a), 336.1225

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. No later than 60 days after issuance of this permit, the permittee shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance / malfunction abatement plan (PM/MAP) for EUCLADDING. After approval of the PM/MAP by the AQD District Supervisor, the permittee shall not operate EUCLADDING unless the PM/MAP, or an alternate plan approved by the AQD District Supervisor, is implemented, and maintained. The plan shall incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices. At a minimum, the plan shall include:
 - a) Identification of the equipment and, if applicable, air-cleaning device and the supervisory personnel responsible for overseeing the inspection, maintenance, and repair.
 - b) Description of the items or conditions to be inspected and frequency of the inspections or repairs.
 - c) Identification of the equipment and, if applicable, air-cleaning device, operating parameters that shall be monitored to detect a malfunction or failure, the normal operating range of these parameters and a description of the method of monitoring or surveillance procedures.
 - d) Identification of the major replacement parts that shall be maintained in inventory for quick replacement.
 - e) 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 the plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the owner or operator shall revise the plan within 45 days after such an event occurs and submit the revised plan for approval to the AQD District Supervisor. Should the AQD determine the PM/MAP to be inadequate, the AQD District Supervisor may request modification of the plan to address those inadequacies. **(R 336.1205, R 336.1702(a), R 336.1910, R 336.1911, R 336.1912)**

2. The permittee shall only use one 200-gallon hot oil jacketed mixing bowl at a time. **(R 336.1205(1)(a), R 336.1225)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EUCLADDING unless cartridge filter dust collector is installed, maintained, and operated in a satisfactory manner. The cartridge filter dust collector shall have an efficiency rating of at least 99.9%. Satisfactory operation includes maintaining the dust collector pressure drop in the range specified in the MAP. **(R 336.1205(1)(a), R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910)**
2. The permittee shall not operate EUCLADDING unless a gauge which measures the pressure drop across the cartridge filter collector is installed, maintained, and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910)**

V. TESTING/SAMPLING

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

1. Upon the request of the AQD District Supervisor, the permittee shall verify PM emission rates from EUCLADDING by testing at owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in.

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; 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 60 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 336.1224, R 336.1225, 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 complete all required calculations in a format acceptable to the AQD District Supervisor by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(1)(a), R 336.1702)**
2. The permittee shall keep, in a satisfactory manner acceptable to the AQD District Supervisor, the total amount of raw clad-composive material used on a monthly and 12-month rolling time period, in pounds for EUCLADDING. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a), R 336.1225)**
3. The permittee shall keep, in a satisfactory manner acceptable to the AQD District Supervisor, the total amount of raw clad-composive material used per batch, in pounds for EUCLADDING. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a), R 336.1225)**

4. The permittee shall continuously monitor the pressure drop across the cartridge filter dust collector and record the pressure drop at least once per calendar day of process operation. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910)**
5. The permittee shall monitor and record, in a satisfactory manner acceptable to the AQD District Supervisor, the start and end times for each 200-gallon hot oil jacketed mixing bowl to demonstrate that only one is used at a time. **(R 336.1205(1)(a), R 336.1225)**
6. The permittee shall keep, in a satisfactory manner acceptable to the AQD District Supervisor, all PM/MAP records including the specific corrective procedures or operational changes taken when applicable for EUCLADDING, as required by SC III.1 on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1702(a), R 336.1910, R 336.1911, R 336.1912)**

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. SVCLADDING	24	46	R 336.1225

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
FGALLOY	Alloy powder product processes	EUCONSARCALLOY, EUVIGAALLOY, EUSCRNBLENDALLOY
FGTITANIUM	Titanium product processes	EUSPHEROTITANIUM, EUEIGATITANIUM1, EUSCRNBLNDPKTTNM

**FGALLOY
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Vacuum induction melting of metals, primarily nickel, chromium, cobalt, and copper and combinations of these metals to produce a powder metal product. The Flexible Group includes processing of the product powder to meet customer specifications.

Emission Unit: EUCONSARCALLOY, EUVIGAAALLOY, EUSCRNBLENDAALLOY

POLLUTION CONTROL EQUIPMENT

The Alloy Central Vacuum System connected to the multi-stage baghouse collector with HEPA filter is used for standard cleanup, spills, and collection of fugitive emissions released into the plant. Process equipment which reduces emissions includes a process cyclone for powder metal collection in a hopper; the multi-stage dust collection system with HEPA filter; and an Argon Recovery System. One multi-stage baghouse with HEPA filter unit is used for metal recovery from both the vacuum system and process equipment.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Nickel and Nickel compounds	16.30 lb/yr	12-month rolling time period as determined at the end of each calendar month	FGALLOY	SC V.1, SC VI.1	R 336.1224, R 336.1225
2. Chromium and Chromium compounds	7.41 lb/yr	12-month rolling time period as determined at the end of each calendar month	FGALLOY	SC V.1, SC VI.1	R 336.1224, R 336.1225
3. Opacity	No visible emissions	Continuous	FGALLOY	GC 13	R 336.1301

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance/malfunction abatement plan (PM/MAP) for FGALLOY. After approval of the PM/MAP by the AQD District Supervisor, the permittee shall not operate FGALLOY unless the PM/MAP, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained. The plan shall incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices. At a minimum, the plan shall include:
 - a) Identification of the equipment and, if applicable, air-cleaning device and the supervisory personnel responsible for overseeing the inspection, maintenance, and repair.
 - b) Description of the items or conditions to be inspected and frequency of the inspections or repairs.
 - c) Identification of the equipment and, if applicable, air-cleaning device, operating parameters that shall be monitored to detect a malfunction or failure, the normal operating range of these parameters and a description of the method of monitoring or surveillance procedures.
 - d) Identification of the major replacement parts that shall be maintained in inventory for quick replacement.

e) 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 the plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the owner or operator shall revise the plan within 45 days after such an event occurs and submit the revised plan for approval to the AQD District Supervisor. Should the AQD determine the PM/MAP to be inadequate, the AQD District Supervisor may request modification of the plan to address those inadequacies. **(R 336.1205, R 336.1702(a), R 336.1910, R 336.1911, R 336.1912)**

2. The permittee shall maintain a minimum overall PM control efficiency (capture efficiency) of 99 percent across FGALLOY. **(R 336.1224, R 336.1299, R 336.2802, 40 CFR 52.21, R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate FGALLOY unless the cyclone and multi-stage dust collection system with HEPA filter are installed, maintained, and operated in a satisfactory manner. The filter shall meet the specification of 99.99% control listed as Filter Class ISO 40 H in ISO 29463: High Efficiency Filter and Filter Media for Removing Particles in Air. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910)**

2. The permittee shall not operate FGALLOY unless the fabric filter dust collector is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the fabric filter dust collector requires a pressure drop range between 2 and 8 inches of water column. **(R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910)**

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 District Supervisor, the permittee shall verify nickel (and nickel compounds) and chromium (and chromium compounds) emission rates from FGALLOY by testing at owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in the Reference Test Method Table.

Reference Test Method Table

Pollutant	Test Method Reference
Metals	40 CFR Part 60, Appendix A, 40 CFR Part 61, Appendix B, 40 CFR Part 63, Appendix A

The verified emission rates will be used to determine the control efficiency to be used in the emission calculation specified in SC VI.1 of this PTI. 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 336.1224, R 336.1225, R 336.1902, 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 calculate and record on a monthly and 12-month rolling time period basis, the emission rates for nickel (and nickel compounds) and chromium (and chromium compounds) through the multi-stage dust collection system with HEPA filter of FGALLOY, using the material loss factors and control efficiency data as specified in Appendix A of this PTI. **(R 336.1371, R 336.1372)**

2. The permittee shall record, in a satisfactory manner, at least once per calendar day the pressure drop for the multi-stage dust collection system with HEPA filter of FGALLOY. All records shall be kept on file for a period of at least five years and made available to the Department upon request. **(R 336.1205(3), R 336.1910)**
3. The permittee shall monitor, in a satisfactory manner, the pressure drop for the multi-stage dust collection system with HEPA filter of FGALLOY on a continuous basis. **(R 336.1205(3), R 336.1910)**
4. The permittee shall monitor the baghouse to verify it is operating properly, by taking visible emission readings for FGALLOY a minimum of once per calendar week. Either a certified or non-certified reader shall take each visible emission reading during routine operating conditions. If any visible emissions (other than uncombined water vapor) are observed, the permittee shall immediately inspect the baghouse and perform any required maintenance. **(R 336.1910)**
5. The permittee shall keep, in a satisfactory manner, records of all visible emission readings for FGALLOY. 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. SVALLOY	42	64	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).

FGTITANIUM FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Titanium product processes including Electrode Induction Gas Atomization (EIGA), Spherical titanium production, and processing and packing of the final products to meet customer specifications.

Emission Unit: EUSPHEROTITANIUM, EUEIGATITANIUM1, EUSCRNBLNDPKTTNM.

POLLUTION CONTROL EQUIPMENT

EIGA titanium production is a closed loop system with no emissions. Spherical titanium production is a closed loop system with no emissions. Product metal passes through a process cyclone for collection in a hopper. Process gas continues through a separate Argon Recovery System. For standard cleanup and spills an internal individual mineral bath vacuum will be used for each production process with no external stack.

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

NA

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 FGTITANIUM. (R 336.1201(7)(a))

VIII. STACK/VENT RESTRICTION(S)

1. The permittee shall not discharge the emissions from FGTITANIUM directly into the atmosphere. (R 336.1205(3), 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).

FGFACILITY CONDITIONS

DESCRIPTION

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

POLLUTION CONTROL EQUIPMENT

Include a description of control equipment if applicable. Use NA if no control equipment used.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Each Individual HAP	Less than 9.0 tpy *	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.2	R 336.1205(3)
2. Aggregate HAPs	Less than 22.5 tpy *	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.2	R 336.1205(3)

* Beginning on the facility startup date and continuing for the first 12 calendar months, this limit applies to the cumulative total HAP emissions. Thereafter, the limit shall become a 12-month rolling limit.

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

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

1. All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. (R 336.1201)
2. The permittee shall keep the following information for FGFACILITY:
 - a) Individual and aggregate HAP emission calculations determining the monthly emission rate of each in tons per calendar month.

- b) Individual and aggregate HAP emission calculations determining the annual emission rate of each in tons per 12-month rolling time period as determined at the end of each calendar month. For the first month following permit issuance, the calculations shall include the summation of emissions from the 11-month period immediately preceding the issuance date. For each month thereafter, calculations shall include the summation of emissions for the appropriate number of months prior to permit issuance plus the months following permit issuance for a total of 12 consecutive months.

If stack test results for FGFACILITY exist for any of the aforementioned pollutants, those stack test results may be used to estimate pollutant emissions subject to the approval of the AQD. In the event that stack test results do not exist for a specific pollutant, an emission factor acceptable to the AQD District Supervisor shall be used to estimate the emissions of a pollutant from FGFACILITY. All records shall be kept on file and made available to the Department upon request. **(R 336.1205(3))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

APPENDIX A

For FGALLOY:

Worst case fugitive product losses are estimated by the permittee as 0.82% by weight
HEPA filter Class ISO 40 H meets a control efficiency standard of at least 99.99%

Monthly emissions shall be calculated as follows:

Total pounds of raw material metal processed in a month shall be multiplied by the composition of a pollutant (nickel or chromium) in the raw material (e.g., % nickel and nickel compounds in the raw material metal) and by the fugitive product losses (0.82%, see above) to yield the Potential Emissions Value for each pollutant.

Pounds of raw material processed per month * composition * 0.82% product losses = Potential Emissions (pounds of pollutant per month)

The calculated Potential Emissions Value shall be reduced to pounds emitted by application of the HEPA filter Class ISO 40 H control efficiency (99.99%) or the control efficiency calculated based on the emissions testing in SC V.1 of this PTI.

Potential Emissions (pounds of pollutant/month) * (1-control efficiency) = pounds of pollutant emitted per month

For FGTITANIUM no calculation is required for the closed loop system.