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

August 6, 2024

PERMIT TO INSTALL
238-94C

ISSUED TO
Arvron, Inc.

LOCATED AT
4720 Clay Avenue SW
Grand Rapids, Michigan 49548

IN THE COUNTY OF
Kent

STATE REGISTRATION NUMBER
N5296

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

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: **May 20, 2024**	
DATE PERMIT TO INSTALL APPROVED: **August 6, 2024**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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COMMON ACRONYMS

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

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

POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm	Actual cubic feet per minute
BTU	British Thermal Unit
°C	Degrees Celsius
CO	Carbon Monoxide
CO_2e	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_2S	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
EU-PE-2	Existing Hirsch Model 14000 EPS pre-expander, including receiving bin and fluidized bed dryer, that exhausts to the RTO	FG-EPS
EU-StorageBins	Permeable storage bins for dried pre-puff beads with emissions exhausted to the RTO	FG-EPS
EU-M-1	Existing Hirsch EPS vacuum block mold with vacuum discharge exhausted to the RTO. Will be replaced by EU-M-4.	FG-EPS
EU-M-2	Existing EPS vacuum block mold with vacuum discharge exhausted to the RTO	FG-EPS
EU-M-4	New EPS vacuum block mold with vacuum discharge exhausted to the RTO.	FG-EPS
EU-BlockDryCure	Heated storage to dry and cure molded blocks	FG-EPS
EU-FinishOps	Area for cutting, packaging, and shipping activities	FG-EPS
EU-Boiler1	Existing natural gas-fired Cleaver Brooks boiler rated at 6.277 MMBTU/hour heat input	FG-EPS
EU-Boiler2	Existing natural gas-fired boiler rated at 3.950 MMBTU/hour heat input	FG-EPS
EU-Engine1	Natural gas-fired reciprocating emergency generator engine subject to 40 CFR Part 60 Subpart JJJJ and 40 CFR Part 63 Subpart ZZZZ	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.

EU-Engine1
EMISSION UNIT CONDITIONS

DESCRIPTION

Natural gas-fired reciprocating emergency generator engine subject to 40 CFR Part 60 Subpart JJJJ and 40 CFR Part 63 Subpart ZZZZ.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. NO_X + HC [A]	10 grams per HP-hr	Test protocol*	EU-Engine1	SC VI.2	40 CFR 60.4233(d)
2. CO	387 grams per HP-hr	Test protocol*	EU-Engine1	SC VI.2	40 CFR 60.4233(d)

[A] NO_X + HC as presented in Table 1 to 40 CFR Part 60 Subpart JJJJ.
* Test protocol shall specify averaging time.

II. MATERIAL LIMIT(S)

1. The permittee shall burn only pipeline quality natural gas in EU-Engine1. **(R 336.1224, R 336.1225, 40 CFR 52.21(c)&(d))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EU-Engine1 for more than 1,000 hours per year on a 12-month rolling time period basis as determined at the end of each calendar month, including the hours as specified in SC III.2. **(R 336.1205(1)(a), R 336.1702(b), 40 CFR 52.21(c)&(d))**

2. The permittee may operate EU-Engine1 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, 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. EU-Engine1 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. The 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply non-emergency power as part of a financial arrangement with another entity. **(40 CFR 60.4243(d))**

3. 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 EU-Engine1:
   a) Operate and maintain EU-Engine1 and control device according to the manufacturer's emission-related written instructions,

b) The permittee may only change those settings that are permitted by the manufacturer. If the permittee does not operate and maintain the engine and control device according to the manufacturer's emission-related written instructions, the engine must demonstrate compliance as specified in SC III.4, and
c) Meet the requirements as specified in 40 CFR Part 89, as it applies to the permittee.
(40 CFR 60.4243(a))

4. If the permittee purchased a non-certified engine or a certified engine operating in a non-certified manner, the permittee shall keep a maintenance plan for each such engine and shall, to the extent practicable, maintain and operate each such engine in a manner consistent with good air pollution control practice for minimizing emissions. **(40 CFR 60.4243(a)(2)(ii))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain EU-Engine1 with a non-resettable hour meter to track the operating hours. **(R 336.1205(1)(a), 40 CFR 60.4237(b))**

2. The nameplate capacity of EU-Engine1 shall not exceed 20 kilowatts, as certified by the equipment manufacturer. **(R 336.1205(1)(a), R 336.1225(2), 40 CFR 60.4231, 40 CFR 89.112(a))**

V. TESTING/SAMPLING

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

1. The permittee shall conduct an initial performance test for EU-Engine1 within one year after startup of the engine to demonstrate compliance with the emission limits in 40 CFR 60.4233 unless the engine has been certified by the manufacturer and the permittee maintains the engine as required by 40 CFR Part 60 Subpart JJJJ. If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4244. No less than 30 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. **(40 CFR 60.4243, 40 CFR 60.4244, 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 last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(1)(a), 40 CFR 52.21(c)&(d))**

2. The permittee shall keep, in a satisfactory manner, records of testing required in SC V.1 or manufacturer certification documentation indicating that EU-Engine1 meets the applicable emission limitations contained in the federal Standards of Performance for New Stationary Sources, 40 CFR Part 60 Subpart JJJJ. If EU-Engine1 becomes uncertified, then the permittee must also keep records of a maintenance plan and maintenance activities. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(40 CFR 60.4243)**

3. The permittee shall monitor and record the total hours of operation and the hours of operation during non-emergencies for EU-Engine1, on a monthly and 12-month rolling time period basis, in a manner acceptable to the AQD District Supervisor. The permittee shall document how many hours are spent for emergency operation of EU-Engine1, including what classified the operation as emergency and how many hours are spent for non-emergency operation. **(R 336.1205(1)(a), 40 CFR 60.4243)**

VII. REPORTING

1. The permittee shall provide written notification of the actual date of initial startup of EU-Engine1 to comply with the federal Standards of Performance for New Stationary Sources, 40 CFR 60.7. The permittee shall submit this notification to the AQD District Supervisor within the time frames specified in 40 CFR 60.7. **(40 CFR 60.7)**

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-Engine1	6	1	40 CFR 52.21(c)&(d)

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and JJJJ, as they apply to EU-Engine1. **(40 CFR Part 60 Subparts A & JJJJ)**

2. The permittee shall comply with all provisions of the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 63 Subparts A and ZZZZ, as they apply to EU-Engine1. **(40 CFR Part 63 Subparts A & ZZZZ)**

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

FLEXIBLE GROUP SPECIAL CONDITIONS

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-EPS	All EPS bead processing operations.	EU-PE-2, EU-StorageBins, EU-M-1, EU-M-2, EU-M-4, EU-BlockDryCure, EU-FinishOps, EU-Boiler1, EU-Boiler2

FG-EPS
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

All EPS bead processing operations.

Emission Unit: EU-PE-2, EU-StorageBins, EU-M-1, EU-M-2, EU-M-4, EU-BlockDryCure, EU-FinishOps, EU-Boiler1, EU-Boiler2

POLLUTION CONTROL EQUIPMENT

Regenerative thermal oxidizer (RTO) designed and operated to achieve 95% destruction of VOC emissions.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	Less than 90 tpy	12-month rolling time period as determined at the end of each calendar month	FG-EPS	SC VI.4	R 336.1205(1)(a), R 336.1702(a)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

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

   If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days if new equipment is installed or upon request from the AQD District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1205, R 336.1225, R 336.1702(a), R 336.1910, R 336.1911)**

2. The permittee shall not input feed into FG-EPS unless emissions are vented to the regenerative thermal oxidizer and the regenerative thermal oxidizer is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes maintaining a minimum VOC destruction efficiency in the regenerative thermal

oxidizer of 95.0 percent by weight, a minimum combustion temperature of 1400°F and a minimum retention time of 0.5 seconds. **(R 336.1205(1)(a), R 336.1702(a), R 336.1910)**

3. The permittee shall not operate EU-M-1 and EU-M-4 at the same time. **(R 336.1205(1)(a), R 336.1702(a))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. Following installation of EU-PE-2, the permittee shall not operate EU-PE-2, EU-StorageBins, EU-M-1, EU-M-2, or EU-M-4 unless the RTO is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the RTO includes maintaining a minimum temperature in the combustion zone as described below. **(R 336.1225, R 336.1702(a), R 336.1910)**
   a) Until stack testing demonstrating compliance with SC III.2 has been completed, the permittee shall maintain a minimum temperature in the combustion zone no lower than the temperature recommended by the RTO manufacturer for attaining a VOC destruction efficiency of 95 percent or greater.
   b) After stack testing demonstrating compliance with SC III.2 has been completed, the permittee shall maintain a minimum temperature in the combustion zone no lower than the lowest of the following:
      i. The temperature demonstrated in the most recent stack test demonstrating compliance with SC III.2
      ii. 1400 degrees Fahrenheit
      iii. The temperature recommended by the RTO manufacturer for attaining a VOC destruction efficiency of 95 percent or greater
      iv. A temperature approved by the AQD District Supervisor, based on stack testing demonstrating compliance with SC III.2

2. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner, acceptable to the AQD District Supervisor, a temperature monitoring device in the combustion chamber of the thermal oxidizer to monitor and record the temperature, on a continuous basis, during operation of FG-EPS. **(R 336.1205, R 336.1702, R 336.1910)**

3. The permittee shall not operate EU-PE-2, EU-StorageBins, EU-M-1, EU-M-2, or EU-M-4 unless the VOC emission capture system to direct emissions to the RTO is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the VOC emission capture system includes both of the following. **(R 336.1205(1)(a), R 336.1702(a), R 336.1910)**
   a. Complete capture of emissions from EU-PE-2 and EU-StorageBins
   b. All mechanical exhausts from EU-M-1, EU-M-2, and EU-M-4 shall be ducted to the RTO.

V. TESTING/SAMPLING

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

1. Within 180 days after commencement of trial operation of EU-M-4, the permittee shall determine VOC emission rates from FG-RTO and verify the VOC destruction efficiency of the RTO by testing at owner's expense, in accordance with Department requirements. 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. 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(1)(a), R 336.1702(a), R 336.2001, R 336.2003, R 336.2004)**

2. Within 180 days after commencement of trial operation of EU-M-4, and annually thereafter, the permittee shall verify that the direction of air flow through each NDO is into the enclosure, during sampling of the EPS beads, using a smoke test (i.e., smoke bomb, smoke tube) or an approved alternate method. The permittee shall notify the AQD District Supervisor in writing at least 15 days before the test is scheduled. No less than 60 days prior to the initial testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and AQD District Supervisor. The AQD must approve the final plan prior to testing. Annual test plans shall be submitted to the AQD District Supervisor for review and approval; however, this requirement may be satisfied by a letter referencing the initial test plan as long as the initial test plan was approved. Verification of air flow direction includes the submittal of a complete report of the test results to the AQD District Supervisor within 30 days following the date of the test. **(R 336.1702(a), R 336.1910)**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall complete all required records in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(1)(a), R 336.1225, R 336.1702(a), R 336.1910)**

2. The permittee shall monitor and record, in a satisfactory manner, the temperature in the combustion chamber of the RTO, on a continuous basis, during operation of EU-PE-2, EU-StorageBins, EU-M-1, EU-M-2, or EU-M-4. Temperature data recording shall consist of measurements made at equally spaced intervals, not to exceed 15 minutes per interval. The permittee shall keep all records and calculations on file at the facility and make them available to the Department upon request. **(R 336.1205(1)(a), R 336.1225, R 336.1702(a), R 336.1910)**

3. For each RTO in operation during production, the permittee shall conduct bypass monitoring for each bypass line if so equipped such that the valve or closure method cannot be opened without creating an alarm condition for which a record shall be made. Records of the bypass line that was open and the length of time the bypass was open shall be kept on file. **(R 336.1702(a))**

4. The permittee shall calculate the VOC emission rate from FG-EPS for each calendar month and for the 12-month rolling time period ending that month using the calculations listed for each EU.
   a) Emissions from EU-PE-2, EU-StorageBins, EU-M-1, EU-M-2, EU-M-4, EU-BlockDryCure, and EU-FinishOps: See Appendix A
   b) Fuel combustion emissions from EU-Boiler1 and EU-Boiler2: fuel combustion emission factors
   c) Uncontrolled emissions generated during RTO bypass

   The permittee shall keep all records and calculations on file at the facility and make them available to the Department upon request. **(R 336.1205(1)(a), R 336.1702(a))**

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 EU-M-4. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-RTO	24	32	R 336.1225, 40 CFR 52.21(c)&(d)

IX. OTHER REQUIREMENT(S)

NA

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

FGFACILITY CONDITIONS

DESCRIPTION

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

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	Less than 90 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC II.1, IV.1, VI.3	R 336.1205(1)(a)&(3)
2. Individual HAP	Less than 9 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.4	R 336.1205(1)(a)&(3)
3. Aggregate HAPs	Less than 22.5 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.4	R 336.1205(1)(a)&(3)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Material processed in pre-expanders [A]	Less than 19,850,000 lbs	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.2	R 336.1205(1)(a)&(3)
[A] Compliance with this limit shall be determined from throughput at pre-expansion.					

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

1. On an annual basis, the permittee shall determine the VOC content of the materials listed below according to a sampling schedule approved by the AQD District Supervisor. The samples shall represent the full range of VOC content of EPS beads used in FGFACILITY and shall be used to estimate the VOC emissions from processing EPS beads in FGFACILITY. **(R 336.1205(1)(a)&(3), R 336.1702)**
    a) Fresh beads, as received
    b) Aged beads, ready to be processed in EU-M-1, EU-M-2, or EU-M-4
    c) EPS product, as shipped

The permittee shall notify the AQD District Supervisor in writing at least 15 days before the test is scheduled. No less than 60 days prior to the initial testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and AQD District Supervisor. The AQD must approve the final plan prior to testing. Annual test plans shall be submitted to the AQD District Supervisor for review and approval; however, this requirement may be satisfied by a letter referencing the initial test plan for sampling and analysis as long as the initial test plan was approved. Verification includes the submittal of a complete report of the test results to the AQD District Supervisor within 30 days following the date of the test.

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(1)(a)&(3))**

2. The permittee shall keep a record of the amount of material processed in pre-expanders during each calendar month and during the 12-month rolling time period ending that month. The permittee shall keep the records on file at the facility, in a format acceptable to the AQD District Supervisor, and make them available to the Department upon request. **(R 336.1205(1)(a)&(3))**

3. The permittee shall calculate the VOC emission rate from FGFACILITY for each calendar month and for the 12-month rolling time period ending that month using the calculations listed below or using an alternate method acceptable to the AQD District Supervisor. **(R 336.1205(1)(a)&(3))**
    a) Emissions from EU-PE-2, EU-StorageBins, EU-M-1, EU-M-2, EU-M-4, EU-BlockDryCure, and EU-FinishOps: Appendix A
    b) Fuel combustion emissions from EU-Boiler1, EU-Boiler2, EU-Engine1, and the RTO: fuel combustion emission factors

4. The permittee shall keep the following information on a monthly basis for FGFACILITY:
    a) Gallons or pounds of each HAP containing material used.
    b) Where applicable, gallons or pounds of each HAP containing material reclaimed.
    c) HAP content, in pounds per gallon or pounds per pound, of each HAP containing material used.
    d) Individual and aggregate HAP emission calculations, based on a mass balance, determining the monthly emission rate of each in tons per calendar month.
    e) Fuel usage for all fuels used in combustion sources and HAP emission factors for each fuel.
    f) Individual and aggregate HAP emission calculations, based on Appendix A and fuel combustion emission factors, determining the cumulative emission rate of each during the first 12-months and the annual emission rate of each thereafter, in tons per 12-month rolling time period as determined at the end of each calendar month.

    The permittee shall keep the records on file at the facility, in a format acceptable to the AQD District Supervisor, and make them available to the Department upon request. **(R 336.1205(3))**

5. The permittee shall keep a record of the VOC content, as received, of each lot of EPS beads used in FGFACILITY. **(R 336.1205(1)(a)&(3))**

6. The permittee shall keep a record of the VOC content determinations required by SC V.1 for product from FGFACILITY. The permittee shall keep the records on file at the facility in a format acceptable to the AQD District Supervisor, and make them available to the Department upon request. **(R 336.1205(1)(a)&(3))**

VII. REPORTING

1. The permittee shall submit all records of product VOC content for FGFACILITY, (as required by SC V.1) to the AQD District Supervisor in an acceptable format within 30 days following the receipt of analytical results. Upon written approval by the AQD District Supervisor, submittal of these records may be discontinued. **(R 336.1205(1)(a)&(3))**

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: Emission Calculations for EPS Processing

Emissions from bead processing (does not include emissions from fuel combustion)
Calculations are based on throughput at pre-expansion.

$$ET = Ea + Eb + DS$$

$$Ea = [Cin - Cmold] \times \left[\left(\frac{100 - D}{100}\right)\right]$$

$$Eb = [Cmold - Cout] \times \left[\frac{\eta}{100} \times \left(\frac{100 - D}{100}\right) + \left(1 - \frac{\eta}{100}\right)\right]$$

$$Cin = \sum_{i} (Ui \times Vi)$$

$$Cmold = \sum_{j} (Uj \times Vj)$$

$$Cout = \sum_{k} (Uk \times Vk)$$

Term / Nomenclature	Meaning/Explanation [A] ("Emissions" refers to emissions of VOC, as appropriate to the calculation being performed.)
ET[B]	Total emissions from EU-PE-2, EU-StorageBins, EU-M-1, EU-M-2, EU-M-4, EU-BlockDryCure, and EU-FinishOps, reflecting emission control by the RTO. Also includes emissions from recycled material, or densified scrap, with no control.
Ea	Total emissions from EU-PE-2 and EU-StorageBins, reflecting emission control by the RTO.
Eb	Total emissions from EU-M-1, EU-M-2, EU-M-4, EU-BlockDryCure, and EU-FinishOps, reflecting emission control by the RTO.
DS	Total emissions from recycled material, or densified scrap generated on site only. Emissions for this material will be calculated as the entire VOC content of any recycled/densified molded block.
η	Overall capture efficiency for emissions from EU-M-1, EU-M-2, EU-M-4, EU-BlockDryCure, and EU-FinishOps combined.
Cin	Total VOC content of EPS beads processed at pre-expansion during a time period, in pounds, based on "as received" composition of beads.
$Cmold$	VOC content of aged pre-puff beads ready to be processed in EU-M-1, EU-M-2, or EU-M-4.
$Cout$	VOC content of product as shipped, in pounds VOC per pound of beads.
Ui, Uj, Uk	Weight of each type of EPS beads used, in pounds. i designates material as received; j designates material ready to enter the vacuum block mold; k designates product ready to ship
Vi, Vj, Vk	VOC content of each type of EPS beads used, in pounds VOC per pound of beads.
D	The RTO's destruction efficiency, in percent, initially presumed to be 95%. Upon approval by the AQD District Supervisor, a value based on stack testing may be used.

[A] Capture efficiency is presumed to be 100% for emissions from EU-PE-2 and EU-StorageBins, and 60% overall for emissions from EU-M-1, EU-M-2, EU-M-4, EU-BlockDryCure, and EU-FinishOps. Upon approval of the AQD District Supervisor, alternate values based on testing or other demonstration may be used.

[B] Emissions shall be calculated separately for two groups of equipment (EU-PE-2 and EU-StorageBins in one group and EU-M-1, EU-M-2, EU-M-4, EU-BlockDryCure, and EU-FinishOps in the other group) and summed to provide total emissions, or by another method approved by the AQD District Supervisor.