

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

May 15, 2020

PERMIT TO INSTALL
29-20

ISSUED TO
Andronaco Industries, Inc.

LOCATED AT
4242 44th Street, S. E.
Kentwood, Michigan 49512

IN THE COUNTY OF
Kent

STATE REGISTRATION NUMBER
N5535

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: April 20, 2020	
DATE PERMIT TO INSTALL APPROVED: May 15, 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 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))	Installation Date / Modification Date	Flexible Group ID
EUHANDLAYUP	Manual (hand) open molding operation which utilizes fiberglass and vinyl ester resins to produce a large valve body to a thickness specification.	January 9, 2014	FGPLANT3
EUFILWINDING	Fiberglass filament winding under varying amounts of tension around a male mold (mandrel). The mandrel rotates while a carriage moves in a perpendicular axis, laying down fiber which is coated with a vinyl ester resin. The resin then cures, and the mandrel is removed.	January 9, 2014	FGPLANT3
EURTM	Resin transfer molding operation consisting of various dies used to form parts in a closed mold process. Fiberglass is placed within the mold and then a resin is injected into the closed mold cavity, encapsulating the fibers. Upon setting of the resin, the mold is opened, and the fiber-reinforced plastic part is removed.	January 9, 2014	FGPLANT3
EUPULTMOLDING	Pultrusion molding process which utilizes a series of dip tanks and filament winding in order to produce fiber-reinforced plastic pipes.	January 9, 2014	FGPLANT3
EUCOMPMIXING	Composite mixing operation used to mix composite fiberglass materials which will be used in the compression molding operation.	January 9, 2014	FGPLANT3
EUBMC1	Bulk molding compound (BMC) closed molding machine.	December 15, 2019	FGBMC
EUBMC2	Bulk molding compound (BMC) closed molding machine.	December 15, 2019	FGBMC
EUBMC3	Bulk molding compound (BMC) closed molding machine.	December 15, 2019	FGBMC
EUBMC4	Bulk molding compound (BMC) closed molding machine.	December 15, 2019	FGBMC
EUBMC5	Bulk molding compound (BMC) closed molding machine.	December 15, 2019	FGBMC
EUBMC6	Bulk molding compound (BMC) closed molding machine.	December 15, 2019	FGBMC

Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1291.

FLEXIBLE GROUP SPECIAL CONDITIONS

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGPLANT3	Plant No. 3 consists of the following operations: manual (hand layup) open molding, fiberglass filament winding, resin transfer molding, pultrusion molding and composite mixing.	EUHANDLAYUP, EUFILWINDING, EURTM, EUPULTMOLDING, EUCOMPMIXING
FGBMC	Six bulk molding compound (BMC) closed molding machines in Plant No. 4.	EUBMC1, EUBMC2, EUBMC3, EUBMC4, EUBMC5, EUBMC6

**FGPLANT3
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Plant No. 3 consists of the following operations: manual (hand layup) open molding, fiberglass filament winding, resin transfer molding, pultrusion molding and composite mixing.

Emission Unit: EUHANDLAYUP, EUFILWINDING, EURTM, EUPULTMOLDING, EUCOMPMIXING

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VOCs and Acetone (CAS No. 67-64-1) combined	24.0 tpy	12-month rolling time period as determined at the end of each calendar month	FGPLANT3	SC VI.2, SC VI.3	R 336.1224, R 336.1702(a)

II. MATERIAL LIMIT(S)

1. The styrene (CAS No. 100-42-5) content of all resins used in FGPLANT3 shall not exceed 53 percent by weight as applied. **(R 336.1225, R 336.1702(a))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall capture all waste resins and cleanup solvents used in FGPLANT3 and store them in closed containers. The permittee shall dispose of waste resins and cleanup solvents in an acceptable manner in compliance with all applicable state rules and federal regulations **(R 336.1224, R 336.1702(a))**

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 complete all required calculations in a format acceptable to the AQD District Supervisor by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1224, R 336.1225, R 336.1702)**

2. The permittee shall maintain a current listing from the manufacturer of the chemical composition of each resin and cleanup solvent, 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)**

3. The permittee shall keep the following information for each calendar month for FGPLANT3:
 - a) The identity and amount (in pounds or gallons) of each resin and cleanup solvent used.
 - b) VOC content and acetone content, in percent by weight, of each resin and cleanup solvent as applied.
 - c) The appropriate emission factor for each material used. (Emission factors from EPA-AP-42, Table 4.4-2 for uncontrolled polyester resin product fabrication processes, or from the American Composites Manufacturers Association (ACMA) Unified Emission Factors (UEF) table for open molding of composites may be used, or an alternate factor approved by the AQD District Supervisor).
 - d) VOC and acetone mass emission calculations determining the monthly emission rate in tons per calendar month.
 - e) VOC and acetone mass emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.

The permittee shall keep the records on file in a format acceptable to the AQD District Supervisor and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1702(a))**

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).

FGBMC FLEXIBLE GROUP CONDITIONS
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DESCRIPTION

Six bulk molding compound (BMC) closed molding machines in Plant No. 4.

Emission Unit: EUBMC1, EUBMC2, EUBMC3, EUBMC4, EUBMC5, EUBMC6

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC (including styrene)	706 lb/yr	12-month rolling time period as determined at the end of each calendar month	FGBMC	SC VI.2, SC VI.3	R 336.1225, R 336.1702(a)

II. MATERIAL LIMITS

1. The styrene content of all resins used in FGBMC shall not exceed 34.0 percent by weight. **(R 336.1225, R 336.1702(a))**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall capture all waste materials used in FGBMC and store them in closed containers. The permittee shall dispose of waste materials in an acceptable manner in compliance with all applicable state rules and federal regulations. **(R 336.1224, R 336.1702(a))**
2. The permittee shall handle all VOC and/or HAPs containing materials 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 336.1224, R 336.1225, R 336.1702(a))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. Within 45 days of issuance of this permit, the permittee shall label each emission unit in FGBMC according to their permit emission unit ID or a method acceptable to the AQD District Supervisor. Within seven days of completing the labeling, the permittee shall notify the AQD District Supervisor, in writing, as to the date the labeling was completed. **(R 336.1201)**

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall complete all required 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 336.1225, R 336.1702(a))**
2. The permittee shall maintain a current listing from the manufacturer of the chemical composition of each material, including the weight percent of each component. The data may consist of 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(a))**
3. The permittee shall keep the following information on a monthly basis for FGBMC:
 - a) The identity and amount (in pounds) of each material used.
 - b) The VOC content (including styrene) of each material used.
 - c) The appropriate emission factors for each raw material used. Emission factors from EPA-AP-42, Table 4.4-2 for uncontrolled polyester resin product fabrication processes may be used, or an alternate factor approved by the AQD District Supervisor.
 - d) VOC mass emission calculations determining the monthly emission rate in pounds per calendar month, and the annual emission rate in pounds per 12-month rolling time period as determined at the end of each calendar month.

The permittee shall keep the records using mass balance, or an alternative format acceptable to the AQD District Supervisor. The permittee shall keep all records on file make them available to the Department upon request. **(R 336.1225, R 336.1702(a))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

Footnotes:

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

FGFACILITY CONDITIONS

DESCRIPTION

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

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Each Individual HAP	Less than 9.0 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.3	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.3	R 336.1205(3)
3. Styrene (CAS No. 100-42-5)	17,270.1 lb/yr	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.4	R 336.1225(2)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

1. The permittee shall determine the HAP content of any material as received and as applied, using manufacturer's formulation data. Upon request of the AQD District Supervisor, the permittee shall verify the manufacturer's HAP formulation data using EPA Test Method 311. **(R 336.1205(3))**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(3))**

2. The permittee shall maintain a current listing from the manufacturer of the chemical composition of each resin and cleanup solvent, 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)**

3. The permittee shall keep the following information on a monthly basis for FGFACILITY:
 - a) Gallons or pounds of each HAP containing resin or cleanup solvent used.
 - b) Where applicable, gallons or pounds of each HAP containing resin or cleanup solvent reclaimed.
 - c) HAP content, in pounds per gallon or pounds per pound, of each HAP containing resin or cleanup solvent used.
 - d) The appropriate HAP emission factor for each resin used, as applicable. (Emission factors from EPA-AP-42, Table 4.4-2 for uncontrolled polyester resin product fabrication processes, or from the American Composites Manufacturers Association (ACMA) Unified Emission Factors (UEF) table for open molding of composites, may be used, or an alternate factor approved by the AQD District Supervisor).
 - e) Individual and aggregate HAP emission calculations determining the monthly emission rate of each in tons per calendar month.
 - f) 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.

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

4. The permittee shall keep the following information on a calendar month basis for FGFACILITY:
 - a) Gallons or pounds of each styrene (CAS No. 100-42-5) containing material used.
 - b) The styrene (CAS No. 100-42-5) content, in percent by weight, of each material used.
 - c) The appropriate emission factor for each material used, as applicable.
 - d) Styrene (CAS No. 100-42-5) mass emission calculations determining the monthly emission rate in pounds per calendar month.
 - e) Styrene (CAS No. 100-42-5) mass emission calculations determining the annual emission rate in pounds per 12-month rolling time period as determined at the end of each calendar month.

The permittee shall keep the records in a format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request¹. **(R 336.1225(2))**

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).