

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

August 18, 2011

PERMIT TO INSTALL
101-11

ISSUED TO
Liberty Cast Products, Inc.

LOCATED AT
35705 Beattie Drive
Sterling Heights, Michigan

IN THE COUNTY OF
Macomb

STATE REGISTRATION NUMBER
P0226

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. 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:

June 27, 2011

DATE PERMIT TO INSTALL APPROVED:

August 18, 2011

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

PERMIT TO INSTALL

Table of Contents

| Section | Page |
|---|-------------|
| Alphabetical Listing of Common Abbreviations / Acronyms | 2 |
| General Conditions | 3 |
| Special Conditions | 5 |
| Emission Unit Summary Table..... | 5 |
| Special Conditions for EURECLAIM | 6 |
| Special Conditions for EUSHOTBLAST..... | 8 |
| Flexible Group Summary Table | 10 |
| Special Conditions for FGMOLDING | 11 |
| Special Conditions for FGMELT&POUR..... | 13 |
| Special Conditions for FGCUT&GRIND..... | 15 |

Common Abbreviations / Acronyms

| Common Acronyms | | Pollutant/Measurement Abbreviations | |
|------------------------|---|--|--|
| AQD | Air Quality Division | BTU | British Thermal Unit |
| ANSI | American National Standards Institute | °C | Degrees Celsius |
| BACT | Best Available Control Technology | CO | Carbon Monoxide |
| CAA | Clean Air Act | dscf | Dry standard cubic foot |
| CEM | Continuous Emission Monitoring | dscm | Dry standard cubic meter |
| CFR | Code of Federal Regulations | °F | Degrees Fahrenheit |
| COM | Continuous Opacity Monitoring | gr | Grains |
| EPA | Environmental Protection Agency | Hg | Mercury |
| EU | Emission Unit | hr | Hour |
| FG | Flexible Group | H ₂ S | Hydrogen Sulfide |
| GACS | Gallon of Applied Coating Solids | hp | Horsepower |
| GC | General Condition | lb | Pound |
| HAP | Hazardous Air Pollutant | m | Meter |
| HVLP | High Volume Low Pressure * | mg | Milligram |
| ID | Identification | mm | Millimeter |
| LAER | Lowest Achievable Emission Rate | MM | Million |
| MACT | Maximum Achievable Control Technology | MW | Megawatts |
| MAERS | Michigan Air Emissions Reporting System | ng | Nanogram |
| MAP | Malfunction Abatement Plan | NO _x | Oxides of Nitrogen |
| MDEQ | Michigan Department of Environmental Quality (Department) | PM | Particulate Matter |
| MIOSHA | Michigan Occupational Safety & Health Administration | PM10 | PM less than or equal to 10 microns diameter |
| MSDS | Material Safety Data Sheet | PM2.5 | PM less than or equal 2.5 microns diameter |
| NESHAP | National Emission Standard for Hazardous Air Pollutants | pph | Pound per hour |
| NSPS | New Source Performance Standards | ppm | Parts per million |
| NSR | New Source Review | ppmv | Parts per million by volume |
| PS | Performance Specification | ppmw | Parts per million by weight |
| PSD | Prevention of Significant Deterioration | psia | Pounds per square inch absolute |
| PTE | Permanent Total Enclosure | psig | Pounds per square inch gauge |
| PTI | Permit to Install | scf | Standard cubic feet |
| RACT | Reasonably Available Control Technology | sec | Seconds |
| ROP | Renewable Operating Permit | SO ₂ | Sulfur Dioxide |
| SC | Special Condition | THC | Total Hydrocarbons |
| SCR | Selective Catalytic Reduction | tpy | Tons per year |
| SRN | State Registration Number | µg | Microgram |
| TAC | Toxic Air Contaminant | VOC | Volatile Organic Compounds |
| TEQ | Toxicity Equivalence Quotient | yr | Year |
| VE | Visible Emissions | | |

* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

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 Environmental Quality, 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 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 R 336.1219 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 R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(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 R 336.1301, 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 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 R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

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 (Process Equipment & Control Devices) | Flexible Group ID |
|--|---|--------------------------|
| EUSILO1 | 30 ton sand storage silo for strictly new sand. Utilizes a common dust collector for emission control. | FGMOLDING |
| EUSILO2 | 50 ton sand storage silo for reclaimed sand. Utilizes a common dust collector for emission control. | FGMOLDING |
| EUSANDMIX1 | Continuous sand mixer with 500 pounds per minute output. | FGMOLDING |
| EUSANDMIX2 | Continuous sand mixer with 180 pounds per minute output. | FGMOLDING |
| EURECLAIM | Mechanical sand reclamation equipment. Emissions from this process are controlled by a cartridge type dust collector. | NA |
| EUINDFURNACE1 | 225 pound capacity induction melting furnace. | FGMELT&POUR |
| EUFURNACE1 | 150 pound capacity melting furnace (0.9 MMBtu/hr natural gas fired). | FGMELT&POUR |
| EUFURNACE2 | 300 pound capacity melting furnace (1.1 MMBtu/hr natural gas fired). | FGMELT&POUR |
| EUFURNACE3 | 1,200 pound capacity tilt melting furnace for aluminum only (1.4 MMBtu/hr natural gas fired). | FGMELT&POUR |
| EUFURNACE4 | 2,000 pound capacity tilt melting furnace for aluminum only (2.0 MMBtu/hr natural gas fired). | FGMELT&POUR |
| EUCHOPSAW1 | Abrasive chop saw controlled by a common cartridge type dust collector. | FGCUT&GRIND |
| EUCHOPSAW2 | Abrasive chop saw controlled by a common cartridge type dust collector. | FGCUT&GRIND |
| EUBANDSAW | Band saw. | NA |
| EUGRINDER | Snag grinder controlled by a common cartridge type dust collector. | FGCUT&GRIND |
| EUSHOTBLAST | Tumble blast machine with steel shot media controlled by a cartridge type dust collector. | 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 336.1290. | | |

The following conditions apply to: EURECLAIM

DESCRIPTION: Mechanical sand reclamation equipment.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Cartridge dust collector

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EURECLAIM unless the associated dust collector is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1224, R 336.1225, R 336.1910)**

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

NA

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

1. The exhaust gases from the EURECLAIM dust collector shall not be discharged to the ambient air at any time. **(R 336.1205, R 336.1224, R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

IX. OTHER REQUIREMENTS

NA

Footnotes:

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

The following conditions apply to: EUSHOTBLAST

DESCRIPTION: Tumble blast machine with steel shot media.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Cartridge dust collector

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EUSHOTBLAST unless the associated dust collector is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1224, R 336.1225, R 336.1910)**

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

NA

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

1. The exhaust gases from the EUSHOTBLAST dust collector shall not be discharged to the ambient air at any time. **(R 336.1205, R 336.1224, R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

IX. OTHER REQUIREMENTS

NA

Footnotes:

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

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 |
|--------------------------|---|---|
| FGMOLDING | Sand storage, mixing, and molding equipment. Silos are controlled by a common dust collector. | EUSILO1, EUSILO2, EUSANDMIX1, EUSANDMIX2 |
| FGMELT&POUR | Five furnaces for melting aluminum, bronze, or copper with the following capacities: 150 lbs (natural gas fired), 225 lbs (electrical induction), 300 lbs (natural gas fired), 1,200 lbs (natural gas fired) and 2,000 lbs (natural gas fired). | EUINDFURNACE1, EUFURNACE1, EUFURNACE2, EUFURNACE3, EUFURNACE4 |
| FGCUT&GRIND | Finishing operations that consist of two abrasive chop saws and a snag grinder. This equipment is controlled by a common cartridge type dust collector. | EUCHOPSAW1, EUCHOPSAW2, EUGRINDER |

The following conditions apply to: FGMOLDING

DESCRIPTION: Sand storage, mixing, and molding equipment

Emission Units: EUSILO1, EUSILO2, EUSANDMIX1, EUSANDMIX2

POLLUTION CONTROL EQUIPMENT: Dust collector (silos)

I. EMISSION LIMITS

| Pollutant | Limit | Time Period/ Operating Scenario | Equipment | Testing / Monitoring Method | Underlying Applicable Requirements |
|------------------|--|--|----------------------|--|---|
| 1. PM | 0.10 lb/1,000 lbs exhaust gases on a dry basis | Test protocol | FGMOLDING (silos) | GC 13 | R 336.1331 |

II. MATERIAL LIMITS

1. The permittee shall not utilize more than 30 tons of binder resin materials per year in FGMOLDING based on a 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205(3), R 336.1225)**
2. The permittee shall not substitute new binder resin materials in place of the existing binder resin materials in FGMOLDING without prior notification to and approval by the AQD. **(R 336.1225, R 336.1901)**

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate the FGMOLDING sand silos unless the associated dust collector is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, 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))**

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep records of the FGMOLDING throughput of each specific material for each calendar month and 12-month rolling time period. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205, R 336.1225, R 336.1702)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

Footnotes:

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

The following conditions apply to: FGMELT&POUR

DESCRIPTION: Five furnaces for melting aluminum, bronze, or copper with the following capacities: 150 lbs (natural gas fired), 225 lbs (electrical induction), 300 lbs (natural gas fired), 1,200 lbs (natural gas fired) and 2,000 lbs (natural gas fired).

Emission Units: EUINDFURNACE1, EUFURNACE1, EUFURNACE2, EUFURNACE3, EUFURNACE4

POLLUTION CONTROL EQUIPMENT: NA

I. EMISSION LIMITS

| Pollutant | Limit | Time Period/ Operating Scenario | Equipment | Testing / Monitoring Method | Underlying Applicable Requirements |
|------------------|--|--|------------------|--|---|
| 1. PM | 0.10 lb/1,000 lbs exhaust gases on a dry basis | Test protocol | FGMELT&POUR | GC 13 | R 336.1331 |

II. MATERIAL LIMITS

1. The throughput for FGMELT&POUR shall not exceed 600 tons of metal per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205, R 336.1225, R 336.1331)**
2. The throughput for FGMELT&POUR shall not exceed 8,000 pounds of flux per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205, R 336.1225, R 336.1702(a))**

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep records of the FGMELT&POUR metal and flux throughput for each calendar month and 12-month rolling time period. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205, R 336.1225, R 336.1702)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

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. SVUPBLASTFAN1 | 24 | 30 | R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d) |
| 2. SVUPBLASTFAN2 | 24 | 30 | R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d) |
| 3. SVUPBLASTFAN3 | 24 | 30 | R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d) |

IX. OTHER REQUIREMENTS

NA

Footnotes:

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

The following conditions apply to: FGCUT&GRIND

DESCRIPTION: Finishing operations that consist of two abrasive chop saws and a snag grinder.

Emission Units: EUCHOPSAW1, EUCHOPSAW2, EUGRINDER

POLLUTION CONTROL EQUIPMENT: Cartridge dust collector

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate FGCUT&GRIND unless the associated dust collector is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1224, R 336.1225, R 336.1910)**

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

NA

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

1. The exhaust gases from the FGCUT&GRIND dust collector shall not be discharged to the ambient air at any time. **(R 336.1205, R 336.1224, R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

IX. OTHER REQUIREMENTS

NA

Footnotes:

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