

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

January 16, 2020

PERMIT TO INSTALL
97-17B

ISSUED TO
Shape Corporation

LOCATED AT
1835 Hayes Street
Grand Haven, Michigan

IN THE COUNTY OF
Ottawa

STATE REGISTRATION NUMBER
N1185

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: January 7, 2020	
DATE PERMIT TO INSTALL APPROVED: January 16, 2020	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

Table of Contents

COMMON ACRONYMS 2
POLLUTANT / MEASUREMENT ABBREVIATIONS..... 3
GENERAL CONDITIONS 4
EMISSION UNIT SPECIAL CONDITIONS..... 6
 EMISSION UNIT SUMMARY TABLE 6
FLEXIBLE GROUP SPECIAL CONDITIONS..... 7
 FLEXIBLE GROUP SUMMARY TABLE 7
 FG-Bumpers 8
 FG-DualUseOvens..... 11

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
EU-Pultrusion	Pultrusion process line that pulls carbon fiber through a resin bath, a curing die, and a cooling box to produce carbon fiber automotive bumpers. Equipment exhausts through SV-Pultrusion.	FG-Bumpers
EU-Oven006	Natural gas-fired oven with heat input rating of 3 million BTU per hour, used for aluminum aging (drying manufactured aluminum parts) and to cure parts produced in EU-Pultrusion. Oven exhausts through SV-Oven006.	FG-Bumpers, FG-DualUseOvens
EU-Oven007	Natural gas-fired oven with heat input rating of 1.2 million BTU per hour, used for aluminum aging (drying manufactured aluminum parts) and to cure parts produced in EU-Pultrusion. Oven exhausts through SV-Oven007.	FG-Bumpers, FG-DualUseOvens

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
FG-Bumpers	Pultrusion line and ovens used to complete the curing of carbon fiber automotive bumpers.	EU-Pultrusion, EU-Oven006, EU-Oven007
FG-DualUseOvens	Aluminum aging activities conducted in ovens used both for this purpose and to cure parts produced in EU-Pultrusion.	EU-Oven006, EU-Oven007

**FG-Bumpers
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Pultrusion line and ovens used to complete the curing of carbon fiber automotive bumpers.

Emission Unit: EU-Pultrusion, EU-Oven006, EU-Oven007

POLLUTION CONTROL EQUIPMENT

Dust collector for bumper cut-off area

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	5.2 tpy ^A	12-month rolling time period as determined at the end of each calendar month	FG-Bumpers	SC VI.2	R 336.1702(a)
2. VOC	5.9 tpy ^B	12-month rolling time period as determined at the end of each calendar month	FG-Bumpers	SC VI.2	R 336.1702(a)
3. PM	0.01 lb/1,000 lbs exhaust, on a dry gas basis	Hourly	EU-Pultrusion	SC VI.5	R 336.1331, 40 CFR 52.21(c)&(d)

^A This limit applies until the stack height for both SV-Oven006 and SV-Oven007 is at least 57.5 feet above ground level.

^B This limit applies on and after the first day the stack height for both SV-Oven006 and SV-Oven007 is at least 57.5 feet above ground level.

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Parts produced	49,000 parts per year ^{1, A}	12-month rolling time period as determined at the end of each calendar month	FG-Bumpers	SC VI.4	R 336.1225(1), R 336.1225(2)
2. Parts produced	70,000 parts per year ^{1, B}	12-month rolling time period as determined at the end of each calendar month	FG-Bumpers	SC VI.4	R 336.1225(1), R 336.1225(2)
3. Material processed in the ovens at the same time	96 parts per oven cycle ¹	Each oven cycle	EU-Oven006 and EU-Oven007 combined	SC VI.3	R 336.1225(1)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
4. Material processed in the ovens per day	192 parts per day ^{1, A}	Calendar day	EU-Oven006 and EU-Oven007 combined	SC VI.3	R 336.1225(1), R 336.1225(2)
5. Material processed in the ovens per day	288 parts per day ^{1, B}	Calendar day	EU-Oven006 and EU-Oven007 combined	SC VI.3	R 336.1225(1), R 336.1225(2)
^A This limit applies until the stack height for both SV-Oven006 and SV-Oven007 is at least 57.5 feet above ground level. ^B This limit applies on and after the first day the stack height for both SV-Oven006 and SV-Oven007 is at least 57.5 feet above ground level.					

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not process parts from EU-Pultrusion in EU-Oven006 or EU-Oven007 at a temperature greater than 200°F. **(R 336.1225, R 336.1702(a))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EU-Pultrusion unless the dust collector is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the dust collector includes following manufacturer’s recommendations for preventive maintenance and filter replacement. **(R 336.1331, R 336.1910, 40 CFR 52.21(c)&(d))**

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall complete all required records and 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), R 336.1910)**
2. The permittee shall keep the following information on a monthly basis for FG-Pultrusion:
 - a) Gallons or pounds of each VOC-containing material used.
 - b) Where applicable, gallons or pounds of each VOC-containing material reclaimed.
 - c) VOC content, in pounds per gallon or pounds per pound, of each VOC-containing material used.
 - d) VOC emission calculations determining the monthly emission rate in tons per calendar month.
 - e) VOC 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 at the facility, in a format acceptable to the AQD District Supervisor, and make them available to the Department upon request. **(R 336.1702(a))**

3. The permittee shall keep, in a satisfactory manner, records of the number of parts processed in SV-Oven006 and SV-Oven007 combined for each oven cycle and for each calendar day. The permittee shall keep all records on file at the facility and make them available to the Department upon request.¹ **(R 336.1225(1), R 336.1225(2))**

4. The permittee shall keep monthly and rolling 12-month time period records of the number of parts produced in FG-Bumpers during each calendar month and during the 12-month rolling time period ending that calendar month. The permittee shall keep all records on file at the facility and make them available to the Department upon request.¹ **(R 336.1225(1), R 336.1225(2))**
5. The permittee shall keep records of filter replacement and preventive maintenance performed for the dust collector. The permittee shall keep all records on file at the facility and make them available to the Department upon request. The records shall contain a description of the action taken, the reason for the action, the initials of the person taking the action, and the date and time the action was taken. **(R 336.1910)**

VII. REPORTING

1. Within 30 days after SV-Oven006 and SV-Oven007 meet the requirements of SC VIII.4 and SC VIII.5, respectively, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the occurrence. **(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-Bumpers ^A	24	40	40 CFR 52.21(c)&(d)
2. SV-Oven006 ^B	18	52.5	R 336.1225, 40 CFR 52.21(c)&(d)
3. SV-Oven007 ^C	18	52.5	R 336.1225, 40 CFR 52.21(c)&(d)
4. SV-Oven006	18	57.5	R 336.1225, 40 CFR 52.21(c)&(d)
5. SV-Oven007	18	57.5	R 336.1225, 40 CFR 52.21(c)&(d)
^A This stack discharges upward but has a rain protection device obstructing vertical discharge. ^B The stack requirements of SC VIII.2 no longer apply after SV-Oven006 meets the requirements of SC VIII.4. ^C The stack requirements of SC VIII.3 no longer apply after SV-Oven007 meets the requirements of SC VIII.5.			

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

FG-DualUseOvens FLEXIBLE GROUP CONDITIONS
--

DESCRIPTION

Aluminum aging activities conducted in ovens used both for this purpose and to cure parts produced in EU-Pultrusion.

Emission Unit: EU-Oven006, EU-Oven007

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Curing of parts in FG-DualUseOvens shall not involve ammonia, molten materials, oil-coated parts, or oil quenching. For this condition, otherwise clean parts with small amounts of cutting fluid at cut points shall not be considered "oil-coated."¹ (R 336.1225)

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))

NA

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).