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

June 7, 2022

PERMIT TO INSTALL
278-02F

ISSUED TO
Sonoco Protective Solutions, Inc.

LOCATED AT
123 North Chipman Street
Owosso, Michigan 48867

IN THE COUNTY OF
Shiawassee

STATE REGISTRATION NUMBER
N7289

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 16, 2022**	
DATE PERMIT TO INSTALL APPROVED: **June 7, 2022**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

Table of Contents

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 condition 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
EUEPSPROCESS	The expandable polymeric foam processes include finished goods storage and all the steps taken to create finished goods from expandable polymeric beads. Major steps include partially expanding polymeric beads with steam in the two Hirsch 6000 pre-expanders, pre-puff storage, and molding the pre-puff into finished goods.	9/19/2003 / 5/21/2018 / 6/18/2019 / 6/7/2022	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.

EUEPSPROCESS
EMISSION UNIT CONDITIONS

DESCRIPTION

The expandable polymeric foam processes include finished goods storage and all the steps taken to create finished goods from expandable polymeric beads. Major steps include partially expanding polymeric beads with steam in the two Hirsch 6000 pre-expanders, pre-puff storage, and molding the pre-puff into finished goods.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

The following definitions apply to EUEPSPROCESS and Appendix A of this permit:

"Expandable polymeric beads" means certain polymeric materials containing an easily volatilized organic material, but does not include reground or recycled foam plastic material. These expandable polymeric beads, identified as “ARCEL beads” and “EPS beads”, can be partially expanded by treatment with steam and subsequently processed and molded into rigid foam finished goods.

“ARCEL beads" means a type of expandable polymeric beads composed of a copolymer of styrene and ethylene and marketed under the brand name ARCEL®.

“EPS beads" means expandable polymeric beads where the polymer is only styrene.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	4.5 lbs per 100 lbs of EPS beads processed	Monthly weighted average determined at the end of each calendar month.	EUEPSPROCESS	SC V.1, VI.2, VI.3, VI.4, VI.5	R 336.1702(a)
2. VOC	10.25 lbs per 100 lbs of ARCEL beads processed	12-month rolling time period as determined at the end of each calendar month	EUEPSPROCESS	SC V.1, VI.2, VI.3, VI.4, VI.5	R 336.1702(a)
3. VOC	125 tpy	12-month rolling time period as determined at the end of each calendar month	EUEPSPROCESS	SC V.1, VI.2, VI.3, VI.4, VI.5	R 336.1225(2), R 336.1702(a)

II. MATERIAL LIMIT(S)

1. The permittee shall limit the total throughput at pre-expansion of expandable polymeric beads in EUEPSPROCESS such that VOC emissions do not exceed the maximum as specified below. This annual limit shall be based on a 12-month rolling time period as determined at the end of each calendar month. **(R 336.1225, R 336.1702(a))**

$$\sum_i \frac{(U_i \times V_i)}{100} \leq 250{,}000\ pounds\ per\ year$$

U_i = Pounds of expandable polymeric beads from lot i used during the period.
V_i = VOC content of expandable polymeric beads from lot i, in pounds of VOC per 100 pounds of beads.

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, if requested by the AQD District Supervisor, determine the VOC content, as received, of each lot of expandable polymeric beads used in EUEPSPROCESS, using a method approved by the AQD District Supervisor. **(R 336.1225, R 336.1702(a))**

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 and make them available 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 keep a written record for each calendar day and month of the throughput at pre-expansion in EUEPSPROCESS for each lot number of expandable polymeric beads processed. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1702(a))**

3. The permittee shall monitor and record the VOC content (in pounds of VOC per 100 pounds of expandable polymeric beads as received) and any VOC content determinations for each lot of expandable polymeric beads processed in EUEPSPROCESS. The vendor's certificate of analysis shall be acceptable for the purpose of determining the VOC content of a lot unless the District Supervisor requires an alternate VOC content determination pursuant to SC V.1. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1702(a))**

4. The permittee shall calculate and keep a record for each calendar month of the average VOC content in pounds of VOC per 100 pounds of expandable polymericbeads used at pre-expansion and of the actual VOC emissions from the processes (based on throughput at pre-expansion), using the method detailed in Appendix A. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1702(a))**

5. The permittee shall calculate the VOC emission rate from EUEPSPROCESS monthly, for the preceding 12-month rolling time period, using a method acceptable to the AQD District Supervisor. The permittee shall

keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1702(a))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVPE1	4	28	R 336.1225, 40 CFR 52.21(c) & (d)
2. SVPE2	4	28	R 336.1225, 40 CFR 52.21(c) & (d)
3. SVDVVENTS1-18*	6	28	R 336.1225, 40 CFR 52.21(c) & (d)
* There are 18 identical mold vents with same air flow and exit temperature			

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	Testing / Monitoring Method	Underlying Applicable Requirements
2. Benzene (CAS# 71-43-2)	36 lb/yr[1]	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.2	R 336.1225(2)
3. Cumene (CAS# 98-82-8)	480 lb/yr[1]	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.3	R 336.1225(2)
4. Ethyl Benzene (CAS# 100-41-4)	167 lb/yr[1]	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.4	R 336.1225(2)
5. Styrene (CAS# 100-42-5)	1672 lb/yr[1]	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.5	R 336.1225(2)
6. Benzaldehyde (CAS# 100-52-7)	1284 lb/yr[1]	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.6	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))**

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 and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition[1]. **(R 336.1225(2))**

2. The permittee shall keep the following information on a monthly basis for FGFACILITY:
   a) Pounds of each lot of benzene containing expandable polymeric beads used at pre-expansion in EUEPSPROCESS.
   b) The benzene content in pounds per 100 pounds of beads for each lot of benzene containing expandable polymeric beads used.
   c) Benzene mass emission calculations determining the monthly emission rate in pounds per calendar month.
   d) Benzene 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 using mass balance, or an alternative method and format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request[1]. **(R 336.1225(2))**

3. The permittee shall keep the following information on a monthly basis for FGFACILITY:
   a) Pounds of each lot of cumene containing expandable polymeric beads used at pre-expansion in EUEPSPROCESS.
   b) The cumene content in pounds per 100 pounds of beads for each lot of cumene containing expandable polymeric beads used.
   c) Cumene mass emission calculations determining the monthly emission rate in pounds per calendar month.
   d) Cumene 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 using mass balance, or an alternative method and format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request[1]. **(R 336.1225(2))**

4. The permittee shall keep the following information on a monthly basis for FGFACILITY:
   a) Pounds of each lot of ethyl benzene containing expandable polymeric beads used at pre-expansion in EUEPSPROCESS.
   b) The ethyl benzene content in pounds per 100 pounds of beads for each lot of ethyl benzene containing expandable polymeric beads used.
   c) Ethyl benzene mass emission calculations determining the monthly emission rate in pounds per calendar month.
   d) Ethyl benzene 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 using mass balance, or an alternative method and format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request[1]. **(R 336.1225(2))**

5. The permittee shall keep the following information on a monthly basis for FGFACILITY:
   a) Pounds of each lot of styrene containing expandable polymeric beads used at pre-expansion in EUEPSPROCESS.
   b) The styrene content in pounds per 100 pounds of beads for each lot of styrene containing expandable polymeric beads used.
   c) Styrene mass emission calculations determining the monthly emission rate in pounds per calendar month.
   d) Styrene 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 using mass balance, or an alternative method and format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request[1]. **(R 336.1225(2))**

6. The permittee shall keep the following information on a monthly basis for FGFACILITY:
   a) Pounds of each lot of benzaldehyde containing expandable polymeric beads used at pre-expansion in EUEPSPROCESS.
   b) The benzaldehyde content in pounds per 100 pounds of beads for each lot of benzaldehyde containing expandable polymeric beads used.
   c) Benzaldehyde mass emission calculations determining the monthly emission rate in pounds per calendar month.
   d) Benzaldehyde 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 using mass balance, or an alternative method and format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request.[1] **(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).

APPENDIX A

I. The pounds of VOC per 100 pounds of expandable polymeric beads used in the processes during the specified time period shall be calculated as follows:

$$P = \frac{(U_1 \times V_1) + (U_2 \times V_2) + ... + (U_n \times V_n)}{(U_1 + U_2 + ... + U_n)}$$

where:

P = Pounds of VOC per 100 pounds of expandable polymeric beads used in the processes during the specified time period.

U_i = Pounds of expandable polymeric beads from lot i used during the specified time period.

V_i = VOC content of expandable polymeric beads from lot i, in pounds of VOC per 100 pounds of beads.

1, 2, n = Individual lots of expandable polymeric beads used in the processes during the specified time period.

II. For each lot of expandable polymeric bead (i) used in the processes, the VOC emission for the specified time period shall be calculated as follows:

$$E_i = \frac{U_i \times V_i}{100}$$

where:

E_i = VOC emissions due to use of expandable polymeric beads from lot i during the specified time period, in pounds.

U_i = Pounds of expandable polymeric beads from lot i used during the specified time period.

V_i = VOC content of expandable polymeric beads from lot i, in pounds of VOC per 100 pounds of beads.

III. The total VOC emission for the specified time period due to the use in the processes of all lots of expandable polymeric beads shall be calculated as follows:

$$T = E_1 + E_2 + ... + E_n$$

where:

T = Total VOC emissions during the specified time period, in pounds.

E_i = As above.

1, 2, n = As above.