

**From:** [Tim Trumbull](#)  
**To:** [EGLE-ROP](#); [Brunner, Julie \(EGLE\)](#)  
**Cc:** [Thomas Mims](#); [Jason Helton](#)  
**Subject:** Sonoco Protective Solutions ROP Initial Application State Registration# N7289  
**Date:** Thursday, April 13, 2023 2:07:40 PM  
**Attachments:** [Owosso\\_ROP\\_PermitCover\\_4-11-23.pdf](#)  
[Owosso\\_SPS\\_ROP\\_Initial\\_Application\\_Forms\\_Package.pdf](#)  
[278-02F.pdf](#)

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**CAUTION: This is an External email. Please send suspicious emails to [abuse@michigan.gov](mailto:abuse@michigan.gov)**

Good Afternoon,

Attached please find our initial application for coverage under the state's renewable operating permit program.

A paper copy is being sent via UPS and is referenced in the cover letter.

Please let me know if you have any questions or need any further information.

Tim Trumbull  
Corp. Environmental Principal  
843-309-7418 cell  
[www.Sonoco.com](http://www.Sonoco.com)



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April 11, 2023  
**UPS Trk #1Z1AW103NT92886629**  
**Email:EGLE-ROP@Michigan.gov**

District Supervisor  
Michigan Dept. of EGLE  
Lansing District  
P.O. Box 30242  
Constitution Hall  
525 W. Allegan Street., 1 South  
Lansing, MI 48909-7760

**Re: Renewable Operating Permit Initial Application**  
**Sonoco Protective Solutions, Inc. – State Registration #N7289**  
**123 North Chipman Street - Owosso, MI**

Dear District Supervisor:

Please find enclosed a signed Renewable Operating Permit Initial Application. The recent issuance of Permit to Install # 278-02F requires we file this application, and achieve administrative completeness, by June 7 of this year. We are submitting a copy electronically to expedite the administrative completeness designation.

A copy of PTI No. 278-02E is also attached for your reference.

If there is any additional information required related to this application, please contact me at 843-349-7418, or via e-mail at [tim.trumbull@sonoco.com](mailto:tim.trumbull@sonoco.com). Thank you.

Sincerely,

A handwritten signature in blue ink, appearing to read 'T. Trumbull', is positioned above the typed name.

Tim Trumbull  
Env. Principal - Sonoco Protective Solutions  
Sonoco Global Environmental Services

Enclosure

Cc: Jason Helton-Sonoco Segment Manager  
Tom Mims- Sonoco Facility Manager  
Julie Brunner, P.E.- MI EGLE

Sonoco Products Co.  
Environmental Services  
1 N. Second St.  
Hartsville, SC 29550



## RENEWABLE OPERATING PERMIT INITIAL APPLICATION ASC-001 APPLICATION SUBMITTAL AND CERTIFICATION

*This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to "Renewable Operating Permit Initial Application Instructions" for additional information to complete the application.*

Source Name: Sonoco Protective Solutions, Inc.	SRN: N7289	Section Number (if applicable):
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Identify the items that are included as part of your administratively complete application in the checklist below. For your application to be complete, it must include information necessary to evaluate the source and to determine all applicable requirements. Answer the compliance statements as they pertain to all the applicable requirements to which the source is subject. A Responsible Official must sign and date this form.

<b>Listing of ROP Application Contents. See the initial application instructions for guidance regarding which forms and attachments are required for your source. Check the box for the items included with your application.</b>	
<input checked="" type="checkbox"/> Completed ROP Initial Application Forms (required)	<input type="checkbox"/> Copies of all Consent Orders/Consent Judgments
<input type="checkbox"/> MAERS Forms (to report emissions not previously submitted)	<input type="checkbox"/> Compliance Plan/Schedule of Compliance
<input checked="" type="checkbox"/> HAP/Criteria Pollutant Potential to Emit Calculations	<input type="checkbox"/> Acid Rain Initial Permit Application
<input checked="" type="checkbox"/> Stack information	<input type="checkbox"/> Cross-State Air Pollution Rule (CSAPR) Information
<input checked="" type="checkbox"/> Copies of all active Permit(s) to Install (required)	<input type="checkbox"/> Additional Information (AI-001) Forms
<input type="checkbox"/> Compliance Assurance Monitoring (CAM) Plan	<input checked="" type="checkbox"/> Paper copy of all documentation provided (required)
<input type="checkbox"/> Other Plans (e.g., Malfunction Abatement, Fugitive Dust, Operation and Maintenance, etc.)	<input checked="" type="checkbox"/> Electronic documents provided (optional)
<input type="checkbox"/> Confidential Information	<input type="checkbox"/> Other, explain:

<b>Compliance Statement</b>	
This source is in compliance with <b>all</b> of its applicable requirements, including those contained in Permits to Install, this application and other applicable requirements that the source is subject to.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
This source will continue to be in compliance with all of its applicable requirements, including those contained in Permits to Install, this application and other applicable requirements that the source is subject to.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
This source will meet, in a timely manner, applicable requirements that become effective during the permit term.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
The method(s) used to determine compliance for each applicable requirement is/are the method(s) specified in the existing Permits to Install, this application and all other applicable requirements that the source is subject to.	
If any of the above are checked No, identify the emission unit(s) or flexible group(s) affected and the applicable requirement for which the source is or will be out of compliance at the time of issuance of the ROP on an AI-001 Form. Provide a compliance plan and schedule of compliance on an AI-001 Form.	

**Name and Title of the Responsible Official (Print or Type)**  
 Jason Helton, Segment Manager

***As a Responsible Official, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate, and complete.***

\_\_\_\_\_  
**Signature of Responsible Official**

4/11/2023

\_\_\_\_\_

**Date**





## RENEWABLE OPERATING PERMIT INITIAL APPLICATION

### S-001 STATIONARY SOURCE INFORMATION

*This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to "Renewable Operating Permit Initial Application Instructions" for additional information to complete the application.*

SRN: N7289	Section Number (if applicable):
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		SIC Code	NAICS Code 326140
<b>SOURCE INFORMATION</b>			
Source Name Sonoco Protective Solutions, Inc.			
Street Address 123 North Chipman Street			
City Owosso	State MI	ZIP Code 48867	County Shiawassee
Section/Town/Range (if street address not available)			
Source Description Expandable polystyrene foam molding operations, including pre-expansion, pre-puff storage, molding presses, and finished goods storage.			

### OWNER INFORMATION

Owner Name Sonoco Products Co.				
Mailing address ( <input type="checkbox"/> check if same as source address) 1 N. Second St.				
City Hartsville	State SC	ZIP Code 29550	County Darlington	Country USA

<input type="checkbox"/> Check if an AI-001 Form is attached to provide more information for S-001. Enter AI-001 Form ID: AI-
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## RENEWABLE OPERATING PERMIT INITIAL APPLICATION FORM

### S-002 CONTACT AND RESPONSIBLE OFFICIAL INFORMATION

*This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to "Renewable Operating Permit Initial Application Instructions" for additional information to complete the application.*

SRN: N7289	Section Number (if applicable):
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At least one contact and one Responsible Official must be identified. Additional contacts and Responsible Officials may be included if necessary.

#### CONTACT INFORMATION

Contact 1 Name Tim Trumbull		Title Environmental Principal		
Company Name & Mailing address ( <input type="checkbox"/> check if same as source address) Sonoco Products Co.				
City Hartsville	State SC	ZIP Code 29550	County Darlington	Country USA
Phone number 843-309-7418		E-mail address tim.trumbull@sonoco.com		

Contact 2 Name (optional) Tom Mims		Title Facility Manager		
Company Name & Mailing address ( <input checked="" type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number 989-712-7706		E-mail address tom.mims@sonoco.com		

#### RESPONSIBLE OFFICIAL INFORMATION

Responsible Official 1 Name Jason Helton		Title Automotive Segment Manager		
Company Name & Mailing address ( <input type="checkbox"/> check if same as source address) Sonoco Protective Solutions, 1323 North Main St.				
City Mt. Pleasant	State TN	ZIP Code 38474	County	Country
Phone number 931-698-8196		E-mail address jason.helton@sonoco.com		

Responsible Official 2 Name (optional)		Title		
Company Name & Mailing address ( <input checked="" type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number		E-mail address		

<input type="checkbox"/> Check if an AI-001 Form is attached to provide more information for S-002. Enter AI-001 Form ID: AI-
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## RENEWABLE OPERATING PERMIT INITIAL APPLICATION

### S-003 SOURCE REQUIREMENT INFORMATION

*This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to "Renewable Operating Permit Initial Application Instructions" for additional information to complete the application.*

SRN: N7289

Section Number (if applicable):

#### SOURCE REQUIREMENT INFORMATION

Answer the questions below for specific requirements or programs to which the source may be subject. Refer to the ROP Initial Application Instructions for additional information.

<p>1. Actual emissions and associated data from <b>all</b> emission units with applicable requirements are required to be reported in MAERS. Are there any emissions and associated data that have <u>not</u> been reported in MAERS for the most recent emissions reporting year? If Yes, identify the emission unit(s) that was/were not reported in MAERS on an AI-001 Form. Applicable MAERS form(s) for unreported emission units must be included with this application.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>2. Is this source subject to the federal regulations on ozone-depleting substances? (40 CFR Part 82)</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>3. a. Is this source subject to the federal Chemical Accident Prevention Provisions? (Section 112(r) of the Clean Air Act Amendments, 40 CFR Part 68) If Yes, a Risk Management Plan (RMP) and periodic updates must be submitted to the USEPA. b. Has an updated RMP been submitted to the USEPA?</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>4. Does the source belong to one of the source categories that require quantification of fugitive emissions? If Yes, identify the category on an AI-001 Form and include the fugitive emissions in the PTE calculations for the source. <i>See ROP Initial Application instructions.</i></p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>5. Does this stationary source have the potential to emit (PTE) of 100 tons per year or more of any criteria pollutant (PM-10, PM 2.5, VOC, NO<sub>x</sub>, SO<sub>2</sub>, CO, lead)? If Yes, include potential emission calculations for each identified pollutant on an AI-001 Form.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>6. Does this stationary source emit any hazardous air pollutants (HAPs) regulated by the federal Clean Air Act, Section 112? If Yes, include potential and actual emission calculations for HAPs, <b>including fugitive emissions</b> on an AI-001 Form.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>7. a. Are any emission units subject to Compliance Assurance Monitoring (CAM)? If Yes, identify the specific emission unit(s) and pollutant(s) subject to CAM on an AI-001 Form. b. Is a CAM plan included with this application on an AI-001 Form?</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>8. Does the source have any active Consent Orders/Consent Judgments (CO/CJ)? If Yes, attach a copy of each CO/CJ on an AI-001 Form.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>9. Are any emission units subject to the federal Cross State Air Pollution Rule (CSAPR)? If Yes, identify the specific emission unit(s) subject to CSAPR on an AI-001 Form.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>10. a. Are any emission units subject to the federal Acid Rain Program? If Yes, identify the specific emission unit(s) subject to the Federal Acid Rain Program on an AI-001 Form. b. Is an Acid Rain Permit Application included with this application?</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>11. Does the source have any required plans such as a malfunction abatement plan, fugitive dust plan, operation/maintenance plan, startup/shutdown plans or any other monitoring plan? If Yes, then the plan(s) must be submitted with this application on an AI-001 Form.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>12. Are there any specific requirements that the source proposes to be identified in the ROP as non-applicable? If Yes, then the requirement and justification must be submitted on an AI-001 Form.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input checked="" type="checkbox"/> Check if an AI-001 Form is attached to provide more information for S-003. Enter AI-001 Form ID: <b>AI-S-003</b>	



## RENEWABLE OPERATING PERMIT INITIAL APPLICATION EU-001 PERMIT TO INSTALL (PTI) EXEMPT EMISSION UNITS

*This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to "Renewable Operating Permit Initial Application Instructions" for additional information to complete the application.*

SRN: N7289	Section Number (if applicable):
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Review all emission units at the source and answer the question below.

1. Does the source have any emission units that are required to be listed in the ROP application under R 336.1212(4) (Rule 212(4)) of the Michigan Air Pollution Control Rules, not including Rules 281(2)(h), 287(2)(c), and 290?  Yes  No

If Yes, identify the emission units in the table below. If No, go to the EU-002 Form.

*Note: Emission units that are subject to process specific emission limitations or standards, even if identified in Rule 212, must be captured in either an EU-002 or EU-004 Form. Identical emission units may be grouped (e.g. PTI exempt Storage Tanks).*

Emission Unit ID	Emission Unit Description	PTI Exemption Rule Citation <small>[e.g. Rule 282(2)(b)(i)]</small>	Rule 212(4) Citation <small>[e.g. Rule 212(4)(c)]</small>
EU-Boiler1	Johnston 600HP Boiler firing Natural Gas	R 282(2)(b)(i)	R 212(4)(b)
EU-Boiler2	300 HP Steam Boiler firing Natural Gas	R 282(2)(b)(i)	R 212(4)(b)
EU-Boiler3	Cleaver Brooks 700HP Steam Boiler firing Natural Gas	282(2)(b)(i)	R 212(4)(b)
EU-			
EU-			
EU-			
EU-			
EU-			
EU-			

Comments:

Check if an AI-001 Form is attached to provide more information for EU-001. Enter AI-001 Form ID: AI-





## RENEWABLE OPERATING PERMIT INITIAL APPLICATION EU-002 EMISSION UNITS MEETING THE CRITERIA OF RULES 281(2)(h), 285(2)(r)(iv), 287(2)(c), OR 290

*This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to "Renewable Operating Permit Initial Application Instructions" for additional information to complete the application.*

SRN: N7289	Section Number (if applicable):
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Review all emission units and applicable requirements at the source and provide the following information.

1. Does the source have any emission units which meet the criteria of Rules 281(2)(h), 285(2)(r)(iv), 287(2)(c), or 290.  Yes  No

If Yes, identify the emission units in the table below. If No, go to the EU-003 Form.

*Note: If several emission units were installed under the same rule above, provide a description of each and an installation date for each.*

Origin of Applicable Requirements	Emission Unit Description – <i>Provide Emission Unit ID and a description of Process Equipment, Control Devices and Monitoring Devices</i>	Date Emission Unit was Installed/ Modified/ Reconstructed
<input type="checkbox"/> Rule 281(2)(h) or 285(2)(r)(iv) cleaning operation		
<input type="checkbox"/> Rule 287(2)(c) surface coating line		
<input type="checkbox"/> Rule 290 process with limited emissions		

Comments:

Check if an AI-001 Form is attached to provide more information for EU-002. Enter AI-001 Form ID: **AI-**



## RENEWABLE OPERATING PERMIT INITIAL APPLICATION EU-003 EMISSION UNITS WITH PERMITS TO INSTALL

*This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to "Renewable Operating Permit Initial Application Instructions" for additional information to complete the application.*

SRN: N7289	Section Number (if applicable):
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Review all emission units at the source and fill in the information in the following table for **all** emission units with Permits to Install (PTI). Any PTI(s) identified below must be attached to the application.

Permit to Install Number	Emission Unit ID	Description (Include Process Equipment, Control Devices and Monitoring Devices)	Date Emission Unit was Installed/Modified/Reconstructed
278-02F	EU-EPSPROCESS	The expandable polymeric foam processes include finished goods storage and all the steps taken to create finished goods form expandable polymeric beads. Major steps	9/19/2003/ 5/21/2018/ 6/18/2019/
	EU-	include patially expanding polymeric beads with steam in the two Hirsch 6000 pre-expanders, pre-puff storage, and molding the pre-puff into finished goods	6/7/2022
	EU-		
	EU-		
	EU-		
	EU-		
	EU-		
	EU-		
	EU-		
<p>1. Are you proposing changes to any emission unit names, descriptions or control devices in the PTIs listed above? If Yes, describe the proposed changes on an AI-001 Form. <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span></p> <p>2. Are you proposing additions or clarifications to any permit conditions? If Yes, describe the proposed changes on an AI-001 Form. <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span></p> <p>3. Are you proposing monitoring, testing, recordkeeping and/or reporting necessary to demonstrate compliance with any applicable requirements? If Yes, describe the proposed conditions on an AI-001 Form. <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span></p> <p><input type="checkbox"/> Check if an AI-001 Form is attached to provide more information for EU-003. Enter AI-001 Form ID: <b>AI-</b></p>			



## RENEWABLE OPERATING PERMIT INITIAL APPLICATION EU-004 OTHER EMISSION UNITS

*This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to "Renewable Operating Permit Initial Application Instructions" for additional information to complete the application.*

SRN: N7289	Section Number (if applicable):
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Complete an EU-004 Form for **all** emission units with applicable requirements that have **not** been addressed on an EU-001, EU-002 or EU-003 Form. This would include grandfathered emission units or PTI exempt emission units subject to applicable requirements in the AQD Rules, and emission units subject to a MACT, NESHAP, NSPS, or other federal requirement.

1. Does the source have emission units with applicable requirements that have not been addressed on the EU-001, EU-002 and/or EU-003 Forms? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>  If Yes, provide the required information below. Complete the AR-001 and/or AR-002 Form(s) to identify all applicable requirements and all monitoring, testing, recordkeeping and/or reporting to demonstrate compliance with the applicable requirements.			
Emission Unit ID <b>EU-</b>	Installation Date (MM/DD/YYYY)	Modification/Reconstruction Date(s) (MM/DD/YYYY)	SIC Code – <i>If different from S-001 Form</i>
Emission Unit Description – <i>Include process equipment, control devices, monitoring devices, and all stacks/vents associated with this emission unit that have applicable requirements. Indicate which forms are used to describe/include the applicable requirements for this emission unit (AR-001 and/or AR-002 Forms).</i>			
Emission Unit ID <b>EU-</b>	Installation Date (MM/DD/YYYY)	Modification/Reconstruction Date(s) (MM/DD/YYYY)	SIC Code – <i>If different from S-001 Form</i>
Emission Unit Description – <i>Include process equipment, control devices, monitoring devices, and all stacks/vents associated with this emission unit that have applicable requirements. Indicate which forms are used to describe/include the applicable requirements for this emission unit (AR-001 and/or AR-002 Forms).</i>			
Emission Unit ID <b>EU-</b>	Installation Date (MM/DD/YYYY)	Modification/Reconstruction Date(s) (MM/DD/YYYY)	SIC Code – <i>If different from S-001 Form</i>
Emission Unit Description – <i>Include process equipment, control devices, monitoring devices, and all stacks/vents associated with this emission unit that have applicable requirements. Indicate which forms are used to describe/include the applicable requirements for this emission unit (AR-001 and/or AR-002 Forms).</i>			
<input type="checkbox"/> Check if an AI-001 Form is attached to provide more information for EU-004. Enter AI-001 Form ID: <b>AI-</b>			



# RENEWABLE OPERATING PERMIT INITIAL APPLICATION

## FG-001: FLEXIBLE GROUPS

*This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to "Renewable Operating Permit Initial Application Instructions" for additional information to complete the application.*

SRN: N7289	Section Number (if applicable):
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Complete the FG-001 Form for all Emission Units (EUs) that you want to combine into a Flexible Group (FG). Create a descriptive ID for the FG and description, and list the IDs for the EUs to be included in the FG. See instructions for FG examples.

Flexible Group ID <b>FG-Facility</b>			
Flexible Group Description Polymeric Foam Molding			
<b>Emission Unit IDs</b>			
EU-EPSPProcess	EU-	EU-	EU-
EU-	EU-	EU-	EU-
EU-	EU-	EU-	EU-
EU-	EU-	EU-	EU-
EU-	EU-	EU-	EU-
EU-	EU-	EU-	EU-
EU-	EU-	EU-	EU-
Flexible Group ID <b>FG-</b>			
Flexible Group Description			
<b>Emission Unit IDs</b>			
EU-	EU-	EU-	EU-
EU-	EU-	EU-	EU-
EU-	EU-	EU-	EU-
EU-	EU-	EU-	EU-
EU-	EU-	EU-	EU-
EU-	EU-	EU-	EU-
EU-	EU-	EU-	EU-
<input type="checkbox"/> Check if an AI-001 Form is attached to provide more information for FG-001. Enter AI-001 Form ID: <b>AI-</b>			



## RENEWABLE OPERATING PERMIT INITIAL APPLICATION AR-001 APPLICABLE REQUIREMENTS FROM MACT, NESHAP OR NSPS

*This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to "Renewable Operating Permit Initial Application Instructions" for additional information to complete the application.*

SRN: N7289	Proposed Section Number (if applicable):
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Answer the question below for emission units subject to a MACT, NESHAP or NSPS regulation and provide either an existing Permit to Install, an existing template table\*, or a newly created table\*\* that contains the applicable requirements for each subject emission unit with the application, including associated monitoring, testing, recordkeeping and reporting necessary to demonstrate compliance.

1. Is any emission unit subject to a Maximum Achievable Control Technology (MACT) standard in 40 CFR Part 63, National Emission Standard for Hazardous Air Pollutants (NESHAP) in 40 CFR Part 61, or New Source Performance Standard (NSPS) in 40 CFR Part 60?  Yes  No

If yes, identify the emission units and applicable MACT, NESHAP or NSPS in the table below.

**Note:** If several emission units are subject to the same regulation, list all of the emission unit IDs together. Attach the applicable requirements (PTI, template table or newly created table) in the selected format to the application using an AI-001 Form.

MACT NESHAP or NSPS Subpart and Name	Emission Unit ID – Provide the Emission Unit ID you created on the EU-003 or EU-004 Form	Applicable Requirements Attached in Which Format?
40 CFR Part 60 Subpart Dc	EUBoiler1 EUBoiler2 EUBoiler3	<input type="checkbox"/> PTI No. <input type="checkbox"/> Template Table* <input checked="" type="checkbox"/> Newly Created Table**
		<input type="checkbox"/> PTI No. <input type="checkbox"/> Template Table* <input type="checkbox"/> Newly Created Table**
		<input type="checkbox"/> PTI No. <input type="checkbox"/> Template Table* <input type="checkbox"/> Newly Created Table**
		<input type="checkbox"/> PTI No. <input type="checkbox"/> Template Table* <input type="checkbox"/> Newly Created Table**
		<input type="checkbox"/> PTI No. <input type="checkbox"/> Template Table* <input type="checkbox"/> Newly Created Table**

**STREAMLINED REQUIREMENTS**

2. Are you proposing to streamline any requirements?  Yes  No

If yes, identify the streamlined and subsumed requirements and provide the EU ID and a justification for streamlining the applicable requirement on an AI-001 Form.

\*MACT and NSPS template tables (available at the link below)

\*\*Blank EU or FG template tables (available at the link below)

<http://michigan.gov/air> (select the Permits Tab, "Renewable Operating Permits(ROP)/Title V", then "ROP Forms & Templates")

Check if an AI-001 Form is attached to provide more information for AR-001. Enter AI-001 Form ID: **AI-**



## RENEWABLE OPERATING PERMIT INITIAL APPLICATION AR-002 OTHER APPLICABLE REQUIREMENTS

*This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to "Renewable Operating Permit Initial Application Instructions" for additional information to complete the application.*

SRN: N7289	Section Number (if applicable):
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### APPLICABLE REQUIREMENTS NOT INCLUDED IN A PTI, MACT, NESHAPS, NSPS, OR PERMIT EXEMPTION

Answer the questions below and create an EU table to identify terms and conditions for each emission unit identified on an EU-004 Form (other than MACT, NESHAP, or NSPS requirements). This would include emission units that are grandfathered or exempt from PTI requirements but subject to state rules, federal rules or consent orders/consent judgments. Blank EU template tables are available on the EGLE Internet at: <http://michigan.gov/air> (select the Permits Tab, "Renewable Operating Permits (ROP)/Title V", then "ROP Forms & Templates")

1. Is there an emission unit identified on an EU-004 Form that is subject to <b>emission limit(s)</b> ? If Yes, fill out an EU table to identify the emission limit(s), and provide the EU ID and the source of the applicable requirement below. Do not include requirements identified on an AR-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. Is there an emission unit identified on an EU-004 Form that is subject to <b>material limit(s)</b> ? If Yes, fill out an EU table to identify the material limit(s), and provide the EU ID and the source of the applicable requirement below. Do not include requirements identified on an AR-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3. Is there an emission unit identified on an EU-004 Form that is subject to <b>process/operational restriction(s)</b> ? If Yes, fill out an EU table to identify the process/operational restriction(s), and provide the EU ID and the source of the applicable requirement below. Do not include requirements identified on an AR-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
4. Is there an emission unit identified on an EU-004 Form that is subject to <b>design/equipment parameter(s)</b> ? If Yes, fill out an EU table to identify the design/equipment parameter(s), and provide the EU ID and the source of the applicable requirement below. Do not include requirements identified on an AR-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

<p>5. Is there an emission unit identified on an EU-004 Form that is subject to <b>testing/sampling requirement(s)</b>? If Yes, fill out an EU table to identify the testing/sampling requirement(s), and provide the EU ID and the source of the applicable requirement below. Do not include requirements identified on an AR-001 Form.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>6. Is there an emission unit identified on an EU-004 Form that is subject to <b>monitoring/recordkeeping requirement(s)</b>? If Yes, fill out an EU table to identify the monitoring/recordkeeping requirement(s), and provide the EU ID and the source of the applicable requirement below. Do not include requirements identified on an AR-001 Form.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>7. Is there an emission unit identified on an EU-004 Form that is subject to <b>reporting requirement(s)</b>? If Yes, fill out an EU table to identify reporting requirement(s), and provide the EU ID and the source of the applicable requirement below. Do not include requirements identified on an AR-001 Form.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>8. Is there an emission unit identified on an EU-004 Form that is subject to <b>stack/vent restriction(s)</b>? If Yes, fill out an EU table to identify stack/vent restriction(s), and provide the EU ID and the source of the applicable requirement below. Do not include requirements identified on an AR-001 Form.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>9. Are there any other requirements that you would like to <b>add</b> for an emission unit identified on an EU-004 Form? If Yes, fill out an EU table to identify the requirements, and provide the EU ID and a justification for the applicable requirement below. Do not include requirements identified on an AR-001 Form.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>10. Are you proposing to streamline any requirements? If Yes, identify the streamlined and subsumed requirements and the EU ID, and provide a justification for streamlining the applicable requirement below. Do not include requirements identified on an AR-001 Form.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/> Check if an AI-001 Form is attached to provide more information for AR-002. Enter AI-001 Form ID: <b>AI-</b>	



## RENEWABLE OPERATING PERMIT INITIAL APPLICATION AR-003 SOURCE-WIDE APPLICABLE REQUIREMENTS

*This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to "Renewable Operating Permit Initial Application Instructions" for additional information to complete the application.*

SRN: N7289	Section Number (if applicable):
------------	---------------------------------

Complete a Source-wide table for any conditions that apply to the entire source. A blank Source-wide template table is available on the EGLE Internet at:

<http://michigan.gov/air> (select the Permits Tab, "Renewable Operating Permits (ROP)/Title V", then "ROP Forms & Templates")

<p>1. Are there any applicable requirements that apply to the entire source?</p> <p style="text-align: right;"> <input checked="" type="checkbox"/> Yes  <input type="checkbox"/> No                 </p> <p>If Yes, identify the conditions by utilizing a Source-wide template table and include all of the appropriate applicable requirements, including associated monitoring, testing, recordkeeping and reporting necessary to demonstrate compliance. Provide information regarding the applicable requirements in the comment field below.</p>
---

Comments	Facility wide requirements taken from PTI 272-02F section VI.
----------	---

<input checked="" type="checkbox"/>	Check if an AI-001 Form is attached to provide more information for AR-003. Enter AI-001 Form ID: <b>AI-AR-003</b>
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**SOURCE-WIDE CONDITIONS**

**DESCRIPTION**

All process equipment at the stationary source including equipment covered by other permits, grandfathered equipment, and exempt equipment.

**POLLUTION CONTROL EQUIPMENT**

NA

**I. EMISSION LIMIT(S)**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period/Operating Scenario</b>	<b>Equipment</b>	<b>Monitoring/ Testing Method</b>	<b>Underlying Applicable Requirements</b>
2. Benzene (CAS# 71-43-2)	36 lb/yr	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	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.2	R 336.1225(2)
4. Ethyl Benzene (CAS# 100-41-4)	167 lb/yr	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.2	R 336.1225(2)
5. Styrene (CAS# 100-42-5)	1672 lb/yr	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.2	R 336.1225(2)
6. Benzaldehyde (CAS# 100-52-7)	1284 lb/yr	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.2	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 336.1213(3)(b)(ii))

NA

See Appendix 5

**VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

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<sup>1</sup>. **(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<sup>1</sup>. **(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<sup>1</sup>. **(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<sup>1</sup>. **(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<sup>1</sup>. **(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.<sup>1</sup> **(R 336.1225(2))**

## **VII. REPORTING**

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

## **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:

NA

## **IX. OTHER REQUIREMENT(S)**

- 1.

### **Footnotes:**

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

<sup>2</sup> This condition is federally enforceable and was established pursuant to Rule 201(1)(a).



## RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

*This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.*

SRN: N7289

Section Number (if applicable):

1. Additional Information ID

AI-Attachment D

### Additional Information

2. Is This Information Confidential?

Yes  No

Please see Attachment D for Calculations

Page of

**Table D.1 VOC Emission Estimates: Plant-Wide Summary  
Sonoco Protective Solutions, Inc. - Owosso, MI**

**DATA INPUT**

Requested Allowable VOC Emissions: **125** tons/yr

	EPS	ARCEL	
Maximum VOC percentage:	<b>4.50%</b>	<b>10.25%</b>	
Average %VOC:	<b>3.85%</b>	<b>9.30%</b>	(existing permit limits; monthly average)

VOC Loss per Process Phase: (no changes from previous applications for this facility)

	EPS	ARCEL	
Pre-expansion (PX)	<b>25%</b>	<b>41%</b>	
Pre-puff Storage (PPS)	<b>19%</b>	<b>23%</b>	(represents total loss over 24 hrs of PPS storage)
Molding (MP)	<b>13%</b>	<b>5%</b>	
Finished Goods Storage (FGS)	<b>43%</b>	<b>31%</b>	(represents total loss over 28 days of FGS storage)
	100%	100%	

Projected Maximum Throughput (lbs/yr): **4,440,260** **850,000** (estimated values; not requested limits)

	EPS	ARCEL	
Number of presses	<b>9</b>	<b>3</b>	(equipment counts updated per Phil Abney email of 12/15/2021)
Number of pre-expanders	<b>1</b>	<b>1</b>	
Number of large pre-puff storage bags	<b>10</b>	<b>2</b>	2000 lb storage capacity per bag
Number of small pre-puff storage bags	<b>12</b>	<b>4</b>	1000 lb storage capacity per bag

Max molding thruput, lbs/hour 1,350 300 (EPS at 150 lb/hr/press; ARCEL at 100 lb/hr/press)  
 Max PX thruput, lbs/hour **1,500** **1,000** (both rates based on using a Hirsch 6000 pre-expander)

Max molding thruput, lbs/shift 8,100 1,800 (maximum lb/hr x 8 hours x 75% utilization)  
 Max PX thruput, lbs/shift 9,000 6,000 (maximum lb/hr x 8 hours x 75% utilization)

Max lbs stored in PPS 32,000 8,000 (based on number of bags and bag capacity)  
 Max lbs stored in FGS **125,000** **75,000** (estimated storage capacity)

**VOC EMISSION ESTIMATION RESULTS:**

Process Phase	Hourly Emissions (lbs) <sup>1</sup>			Per Shift (8-hrs) Emissions (lbs) <sup>2</sup>			Per Day (24-hrs) Emissions (lbs) <sup>3</sup>			Per Year Emissions (tons) <sup>4</sup>		
	EPS	ARCEL	TOTALS	EPS	ARCEL	TOTALS	EPS	ARCEL	TOTALS	EPS	ARCEL	TOTALS
PX	16.9	42.0	58.9	86.6	228.8	315.4	308.0	305.0	613.0	21.4	16.2	37.6
PPS	9.8	7.1	16.9	78.0	57.0	135.1	234.1	171.1	405.2	16.2	9.1	25.3
MP	7.9	1.5	9.4	40.5	8.4	48.9	121.6	25.1	146.7	11.1	2.0	13.1
FGS <sup>5</sup>	<b>10.2</b>	<b>3.9</b>	14.1	81.5	31.5	113.0	<b>244.5</b>	<b>94.6</b>	339.1	36.8	12.3	49.0
Totals	44.7	54.6	99.3	286.7	325.7	612.4	908.2	595.9	1504.1	<b>85.5</b>	<b>39.5</b>	<b>125.0</b>

<sup>1</sup> For Hourly emissions, PX and MP based on maximum VOC content; PPS and FGS based on VOC content limits. The loss at PPS is based on 24 hours of storage; for simplicity, it is assumed that the loss over each of those 24 hours is equal.

<sup>2</sup> For 8-Hour emissions, throughput at PX and MP based on maximum hourly throughput times 8 hours times 75% (to account for down time); used VOC content limits for each phase

<sup>3</sup> PX and PPS Daily emissions are based on PPS storage capacity; Daily emissions from MP are based on the minimum of daily MP throughput or PPS storage capacity.

<sup>4</sup> For Annual emissions, all process phases based on VOC content limits

<sup>5</sup> Refer to Table D.6 for Hourly and Daily emission estimates for FGS phase.

**Table D.2 Toxic Air Pollutant Emissions from EPS Processing  
Sonoco Protective Solutions, Inc. - Owosso, MI**

Air Toxic Compounds:	CAS Number	Maximum Concentration <sup>1</sup> ppmw	Total Loss rate <sup>1</sup> % by wt.	Maximum Emissions <sup>2</sup>					
				(lbs/hr)	(lbs/8-hrs) <sup>3</sup>	(lbs/24-hr) <sup>4</sup>	(lbs/month) <sup>5</sup>	(lbs/yr)	(tons/yr)
Acetophenone	98-86-2	300	6	0.027	0.22	0.7	8.0	79.9	0.04
Benzaldehyde	100-52-7	290	100	0.435	3.48	11.0	128.8	1,287.7	0.64
Benzene	71-43-2	10	80	0.012	0.10	0.3	3.6	35.5	0.02
Cumene	98-82-8	241	55	0.199	1.59	5.0	58.9	588.6	0.29
Ethyl Benzene	100-41-4	102	34	0.052	0.42	1.3	15.4	154.0	0.08
n-Pentane <sup>6,7</sup>	109-66-0	42,997	100	42.81	271.45	859.9	16,532.8	165,327.6	82.66
Cyclopentane <sup>7</sup>	287-92-3	42,997	100	42.81	271.45	859.9	16,532.8	165,327.6	82.66
Phenol	108-95-2	4	100	0.006	0.05	0.2	1.8	17.8	0.01
Styrene monomer	100-42-5	1,000	53	0.795	6.36	20.1	235.3	2,353.3	1.18
Toluene	108-88-3	110	55	0.091	0.73	2.3	26.9	268.6	0.13
Xylene	1330-20-7	350	55	0.289	2.31	7.3	85.5	854.8	0.43
<b>TOTALS:</b>				<b>44.71</b>	<b>286.69</b>	<b>908.2</b>	<b>17,096.8</b>	<b>170,967.8</b>	<b>85.5</b>

**Period**                      **EPS Processed**

Example Annual Maximum:    **4,440,260** lbs, based on (requested 150 tpy VOC limit minus potential VOC emissions from Arcel processing) divided by EPS VOC content limit  
Hourly maximum:                      **1,500** lbs, from Table D.1

<sup>1</sup> Represents the maximum combination of concentration and loss rate among updated information (provided in 2020) by the various suppliers of EPS material to Sonoco facilities.

<sup>2</sup> Emissions = (Air Toxic Concentration, as a fraction) x (Pounds Processed) x (Loss Rate)

<sup>3</sup> Except for pentane and cyclopentane, Lb/8-hour emissions based on hourly maximum times 8 hours times 75% utilization

<sup>4</sup> Except for pentane and cyclopentane, daily emissions based on 8-hour emissions times 3 times ratio of daily VOC emissions over hourly VOC emissions (from Table D.1).

<sup>5</sup> Lb/month emissions based on annual emissions divided by 10

<sup>6</sup> Pentane and cyclopentane emissions based on total VOC emissions from Table D.1, minus the sum of emissions from the other individual toxic constituents.

<sup>7</sup> The EPS supplier whose resin is used most frequently by this plant uses a 'Mixed Pentane' blowing agent, consisting of n-Pentane, Isopentane and Cyclopentane. However, the supplier does not provide the relative percentages of each chemical. For toxics analysis purposes, it is shown here as being either 100% n-Pentane or 100% Cyclopentane. Therefore, the emissions of these two chemicals are not additive.



**Table D.4**

**Toxic Air Pollutant Emissions from Boiler Combustion  
Sonoco Protective Solutions, Inc. - Owosso, MI**

Pollutant	Emission Factor <sup>1</sup> (lb/mmcft)	POTENTIAL EMISSIONS							
		Boiler 1 Johnston 600hp		Boiler 2 Johnston 300hp		Boiler 3 Johnston 700hp		TOTAL lbs/hr	TOTAL tpy
		lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy		
Benzene	2.10E-03	0.00005	0.0002	0.00003	0.0001	0.00006	0.0003	0.00014	0.0006
Formaldehyde	7.50E-02	0.00188	0.0082	0.00095	0.0041	0.00220	0.0096	0.00503	0.0220
Hexane	1.8	0.04518	0.1979	0.02268	0.0993	0.05274	0.2310	0.12060	0.5282
Naphthalene	6.10E-04	0.00002	0.0001	0.00001	0.0000	0.00002	0.0001	0.00004	0.0002
Toluene	3.40E-03	0.00009	0.0004	0.00004	0.0002	0.00010	0.0004	0.00023	0.0010

Natural gas heating value: **1000** Btu/ft<sup>3</sup>

Potential natural gas throughput, mmcf:

	Boiler Rating (mmBtu/hr)	Gas Usage (mmcf/hr)	Hours/year	Gas Usage (mmcf/yr)
Johnston 600hp	<b>25.1</b>	0.0251	8760	<b>219.9</b>
Johnston 300hp	<b>12.6</b>	0.0126	8760	<b>110.4</b>
Johnston 700hp	<b>29.3</b>	0.0293	8760	<b>256.7</b>

<sup>1</sup> Emission factors are from USEPA AP-42, Section 1.4, Natural Gas Combustion, July 1998



**Table D.5 Toxic Air Pollutant Emissions - Plantwide Summary  
Sonoco Protective Solutions, Inc. - Owosso, MI**

Air Toxic Compounds:	CAS Number	Raw Material Type	Maximum Emissions <sup>1</sup>					
			(lbs/hr)	(lbs/8-hr)	(lbs/24-hr)	(lb/month) <sup>2</sup>	(lbs/yr)	(tons/yr)
a,a-dimethyl benzylalcohol	617-94-7	Arcel	0.651	5.21	9.5	55.3	553.4	0.28
Acetophenone	98-86-2	EPS & Arcel	0.378	3.03	5.8	37.9	378.6	0.19
Benzaldehyde	100-52-7	Arcel	0.276	2.21	4.0	23.5	234.6	0.12
Benzene	71-43-2	EPS, Arcel, Boilers	0.019	0.15	0.4	4.2	42.7	0.02
Cumene	98-82-8	EPS	0.199	1.59	5.0	58.9	588.6	0.29
d-Limonene	5989-27-5	Arcel	10.000	80.00	146.4	850.0	8500.0	4.25
Ethyl benzene	100-41-4	EPS & Arcel	0.101	0.81	2.0	19.6	195.6	0.10
n-Pentane <sup>3</sup>	109-66-0	EPS	42.81	271.45	859.9	16,533	165,328	82.66
Cyclopentane <sup>3</sup>	287-92-3	EPS	42.81	271.45	859.9	16,533	165,328	82.66
Isopentane	78-78-4	Arcel	43.24	234.61	429.2	7,065	70,655	35.33
Phenol	108-95-2	EPS	0.006	0.05	0.2	1.8	17.8	0.01
Styrene	100-42-5	EPS & Arcel	0.851	6.81	21.0	240.1	2400.9	1.20
Toluene	108-88-3	EPS	0.091	0.73	2.3	26.9	268.6	0.13
Xylene	1330-20-7	EPS	0.289	2.31	7.3	85.5	854.8	0.43
		<b>Totals:</b>	<b>98.91</b>	<b>608.9</b>	<b>1,493.1</b>	<b>25,002</b>	<b>250,000</b>	<b>125.0</b>

<sup>1</sup> Emission values summarized from Tables D.2, D.3 and D.4

<sup>2</sup> Lb/month emissions based on annual emissions divided by 10

<sup>3</sup> The EPS material supplier whose resin is used most frequently by this plant uses a 'Mixed Pentane' blowing agent, consisting of n-Pentane, Isopentane and Cyclopentane. However, the supplier does not provide the relative percentages of each chemical. For toxics analysis purposes, it is shown here as being either 100% n-Pentane or 100% Cyclopentane. Therefore, the emissions of these two chemicals are not additive.

**Table D.6 VOC Emission Losses from Finished Goods Storage (FGS)  
Sonoco Protective Solutions, Inc. - Owosso, MI**

**EPS MATERIAL**

**Historical FGS Loss Data for EPS Material <sup>1</sup>**

Average Raw VOC %: **4.19**

Freshly molded VOC %: **1.76**

Storage Period	Avg % VOC (at end of period)	VOC Loss per Storage Period <sup>3</sup>	Cumulative Loss	Adjusted Cumulative Loss <sup>4</sup>
Day 1	<b>1.31</b>	10.6%	10.6%	12.4%
Day 2	<b>1.15</b>	3.9%	14.5%	16.9%
Days 3 thru 4	<b>0.99</b>	3.8%	18.3%	21.3%
Days 5 thru 14	<b>0.41</b>	13.8%	32.2%	37.4%
Days 15 thru 28	<b>0.21</b>	4.8%	37.0%	43.0%
		37.0%	37.0%	<b>43%</b>

**Worst-case Short-term VOC Losses for EPS Material in FGS <sup>5</sup>**

Storage Day	Product added to FGS (lbs)	VOC Daily Loss <sup>6</sup>	Raw Material VOC Content	VOC loss, lbs
Day 1	24,300	12.4%	3.85%	115.6
Day 2	24,300	4.5%	3.85%	42.1
Day 3	24,300	2.2%	3.85%	20.9
Day 4	24,300	2.2%	3.85%	20.9
Day 5	24,300	1.6%	3.85%	15.0
Day 6	24,300	1.6%	3.85%	15.0
Day 7	24,300	1.6%	3.85%	15.0
	170,100			244.5

VOC losses from EPS material in FGS: **244.5 lb/day**  
**10.2 lb/hr**

**ARCEL MATERIAL <sup>2</sup>**

Storage Period	VOC Loss per Storage Period <sup>3</sup>	Cumulative Loss	Adjusted Cumulative Loss <sup>4</sup>
Day 1	<b>10.6%</b>	10.6%	8.9%
Day 2	<b>3.9%</b>	14.5%	12.2%
Days 3 thru 4	<b>3.8%</b>	18.3%	15.4%
Days 5 thru 14	<b>13.8%</b>	32.2%	26.9%
Days 15 thru 28	<b>4.8%</b>	37.0%	31.0%
	37.0%	37.0%	<b>31%</b>

**Worst-case Short-term VOC Losses for ARCEL Material in FGS <sup>5</sup>**

Storage Day	Product added to FGS (lbs)	VOC Daily Loss <sup>6</sup>	Raw Material VOC Content	VOC loss, lbs
Day 1	5,400	8.9%	9.30%	44.7
Day 2	5,400	3.2%	9.30%	16.3
Day 3	5,400	1.6%	9.30%	8.1
Day 4	5,400	1.6%	9.30%	8.1
Day 5	5,400	1.2%	9.30%	5.8
Day 6	5,400	1.2%	9.30%	5.8
Day 7	5,400	1.2%	9.30%	5.8
	37,800			94.6

VOC losses from ARCEL material in FGS: **94.6 lb/day**  
**3.9 lb/hr**

1. Data taken from historical loss sampling data. See Table D.7.

2. There is no historical sampling data for ARCEL material, so assuming same 'loss rates per time of storage' as EPS material.

3. 'VOC Loss per Storage Period' represents the portion of the initial VOC content lost during the particular storage period. For example, 3.8% of the initial VOC content was lost during the 'Days 3 thru 4' period. That particular loss is calculated as follows: [(VOC content after Day 2, 1.15%) - (VOC content after Days 3 thru 4, 0.99%)]/(initial VOC content, 4.19%) = 3.8%.

4. Adjusted to total FGS loss values used in Owosso permit calculations.

5. A 7-day storage cycle is utilized here, since maximum storage capacity in the warehouse is reached after this number of days (assuming full production rates every day and no product shipping until 8th day of cycle). This correlates closely with the typical 10-day storage time at this facility.

These represent worst case losses - assumes FGS always at full capacity. These short-term losses cannot be extrapolated to long-term losses.

6. 'VOC Daily Loss' is the percentage of initial VOC content that is lost during each day of the 7-day cycle of storage. For example, the 24,300 lbs of EPS added to FGS on the first day of the cycle will lose 12.5%; By Day 6, that quantity of material put into storage on Day 1 will lose 1.6%. These daily loss percentages are based on the 'Adjusted Cumulative Loss' rates. For example, the EPS daily loss at Day 4 is calculated as follows: [(Adjusted Cumulative Loss after the Days 3 thru 4 period, 21.4%) - (Adjusted Cumulative Loss after the Day 2 period, 16.9%)] / (number of days in the Days 3 thru 4 period) = 2.2%.

**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: <b>May 16, 2022</b>	
DATE PERMIT TO INSTALL APPROVED: <b>June 7, 2022</b>	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 <sub>2</sub> 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 <sub>2</sub> S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO <sub>x</sub>	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 <sub>2</sub>	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.

<b>Emission Unit ID</b>	<b>Emission Unit Description (Including Process Equipment &amp; Control Device(s))</b>	<b>Installation Date / Modification Date</b>	<b>Flexible Group ID</b>
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)**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period / Operating Scenario</b>	<b>Equipment</b>	<b>Monitoring / Testing Method</b>	<b>Underlying Applicable Requirements</b>
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))**

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

U<sub>i</sub> = Pounds of expandable polymeric beads from lot i used during the period.

V<sub>i</sub> = 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 polymeric beads 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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
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. SVDVENTS1-18*	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:**

<sup>1</sup> 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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	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<sup>1</sup>. **(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<sup>1</sup>. **(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<sup>1</sup>. **(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<sup>1</sup>. **(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<sup>1</sup>. **(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.<sup>1</sup> **(R 336.1225(2))**

**VII. REPORTING**

NA

**VIII. STACK/VENT RESTRICTION(S)**

NA

**IX. OTHER REQUIREMENT(S)**

NA

**Footnotes:**

<sup>1</sup> 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:

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

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:

$$T = E_1 + E_2 + \dots + E_n$$

where:

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

$E_i$  = As above.

1, 2, n = As above.