

**Expanded Polystyrene Process Compliance Assurance Monitoring (CAM) Plan**

Indicator	Indicator 1	Indicator 2	Indicator 3
<p><b>Measurement approach</b></p>	<p>Annual Performance Test</p>	<p>Production and Operations Recordkeeping</p>	<p>Pentane Recovery System Monitoring</p>
	<p>For Boiler No. 3 within 180 days of permit issuance (and annually thereafter for all three boilers) test to determine the VOC destruction efficiency of each boiler.</p> <p>Annually, during the months of June through September conduct the following tests. These tests shall be conducted on a statistically significant percentage of a typical daily production.</p> <ol style="list-style-type: none"> <li>1. Determine the concentration of total VOC content in the raw bead at bag opening.</li> <li>2. Determine the concentration of total VOC content in the bead immediately prior to the molding operation.</li> </ol>	<p>Obtain and retain an original or copy of the VOC content of each separate lot-number/identifier prior to expanding any part of a bead lot.</p> <p>Record the amount of natural gas used each month for all boilers.</p> <p>Record the amount of cleaning solvent used each month.</p> <p>Record the VOC emissions from lid manufacturing and printing each month</p> <p>Record the quantity of cups manufactured by categorical type (low, medium and high density) each month.</p> <p>Record the VOC-content of cleaning solvents, including the value of the total VOC vapor pressure of each solvent.</p> <p>Record time and day when loading EPS beads into mixers and when processing EPS beads in the mixers, the pre-expanders, the screeners and the line bags.</p> <p>Record the time and day of boiler system operations.</p> <p>Record the time and day of pentane recovery system operation</p>	<p>Monthly visual inspections of ductwork of the pentane recovery system.</p> <p>Daily recording of pentane recovery system pressure drop.</p> <p>Continuously monitor boiler combustion chamber temperature</p> <p>Record pentane recovery system maintenance activities per O&amp;M Plan.</p>

<b>Indicator</b>	<b>Indicator 1 Annual Performance Test</b>	<b>Indicator 2 Production and Operations Recordkeeping</b>	<b>Indicator 3 Pentane Recovery System Monitoring</b>
<b>Indicator range</b>	<p>An excursion shall be a VOC destruction efficiency of any boiler less than 99.5%.</p> <p>An excursion shall be an average concentration of the total VOC content of the raw bead at bag opening greater than 5.5 percent.</p> <p>An excursion shall be an average concentration of total VOC content in the bead immediately prior to the molding operation greater than 3.236 percent.</p>	<p>An excursion is any failure to operate one or more boilers and the pentane recovery system whenever loading EPS beads into mixers and whenever processing EPS beads in the mixers, the pre-expanders, the screeners and the line bags.</p> <p>An excursion shall be failure to maintain any of the following records:</p> <p>VOC content of each separate bead lot</p> <p>Amount of natural gas used in the boilers each month.</p> <p>Amount of cleaning solvent used each month.</p> <p>Lid manufacturing and printing VOC emissions each month</p> <p>Quantity of cups manufactured by categorical type each month.</p> <p>VOC content of cleaning solvents, including VOC vapor pressure of each solvent.</p>	<p>An excursion shall be the failure to visually inspect ductwork of the pentane recovery system in any month.</p> <p>An excursion shall be the failure to record the pentane recovery system pressure drop on any two consecutive operating days.</p> <p>An excursion shall be any two daily readings of the pentane recovery system pressure drop lower than the average minimum pressure drop calculated in the most recent approved performance test.</p> <p>An excursion shall be the failure to monitor the boiler combustion chamber temperature for any three consecutive hours.</p> <p>An excursion shall be any three consecutive hour average boiler combustion chamber temperature that is less than the minimum temperature recorded during the most recent performance test that demonstrated VOC destruction equal to or greater than 99.5%</p> <p>An excursion shall be any failure to conduct or record pentane recovery system maintenance activities in accordance with the O&amp;M Plan.</p>

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<p><b>Quality Improvement Plan</b></p>	<p>In the event that the boiler VOC destruction efficiency is less than 99.5%, implement process operational changes to improve efficiency and retest.</p> <p>In the event that the total VOC content of the raw bead at bag opening is greater than 5.5% meet with supplier of raw bead to assure compliance with this requirement and then retest.</p> <p>In the event that the concentration of total VOC content in the bead immediately prior to the molding operation is greater than 3.236 percent, implement process changes upstream of the sampling location and retest.</p>	<p>In the event that any required records are not retained for any single month, retrain employees. If this occurs a second time in any 12-month period, evaluate data collection and recordkeeping methodologies for improvement.</p> <p>In the event that one or more boilers and/or the pentane recovery system are not operating whenever loading EPS beads into mixers and whenever processing EPS beads in the mixers, the pre-expanders, the screeners and the line bags, retrain plant operators. If this happens twice in any one-month period, evaluate and repair control systems as necessary.</p>	<p>In the event that ductwork inspections do not occur in any single month, retrain employees. If this occurs a second time in any 12-month period, evaluate data collection and recordkeeping methodologies for improvement.</p> <p>In the event that pentane recovery system pressure drop readings do not occur on two consecutive days twice in any calendar month, retrain employees. In the event that pentane recovery system pressure drop readings do not occur on two consecutive days four times in any three month period, evaluate data collection and recordkeeping methodologies for improvement.</p> <p>In the event that pentane recovery system pressure drops readings are lower than the average minimum pressure drop on two consecutive days twice in any calendar month, evaluate system components for proper operation and repair as necessary. In the event that the pentane recovery system pressure drops readings are lower than the average minimum pressure drop on two consecutive days four times in any three month period, schedule a new performance test with online readouts of VOC concentration and adjust capture system and boiler destruction efficiency to meet 99.5% requirements.</p> <p>In the event that 3-hour boiler combustion chamber temperature is not monitored continuously twice in any calendar month, repair or replace temperature monitor.</p>

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<p><b>Quality Improvement Plan (Continued)</b></p>			<p>In the event that the three consecutive hour average boiler combustion chamber temperature is less than the minimum temperature recorded during the most recent performance test that demonstrated VOC destruction equal to or greater than 99.5% twice in any calendar month, evaluate system components for proper operation and repair as necessary. In the event that the three consecutive hour average boiler combustion chamber temperature is less than the minimum temperature recorded during the most recent performance test that demonstrated VOC destruction equal to or greater than 99.5% four times in any three month period, schedule a new performance test with online readouts of VOC concentration and adjust boiler control system and boiler destruction efficiency to meet 99.5% requirements.</p> <p>In the event of any failure to conduct or record pentane recovery system maintenance activities in accordance with the O&amp;M Plan twice in any three month period, retrain employees. In the event of any failure to conduct or record pentane recovery system maintenance activities in accordance with the O&amp;M Plan four times in any six month period, evaluate data collection and recordkeeping methodologies for improvement.</p>

<b>Indicator</b>	<b>Indicator 1 Annual Performance Test</b>	<b>Indicator 2 Production and Operations Recordkeeping</b>	<b>Indicator 3 Pentane Recovery System Monitoring</b>
<b>QA/QC Practices and Criteria</b>	<p>All testing to demonstrate VOC destruction efficiency shall be in accordance with EPA Method 25A and applicable sections of Appendix A to 40 CFR Part 60.</p> <p>Analysis of the collected EPS samples shall be in accordance with BAAQMD Method 45 or SCAQMD Method 306-91.</p>	<p>Train operating and maintenance personnel on recordkeeping requirements</p>	<p>Annually calibrate the pentane recovery system pressure drop monitor in accordance with the manufacturer’s recommendations.</p> <p>Annually calibrate the boiler combustion chamber temperature monitor in accordance with the manufacturer’s recommendations.</p> <p>Train operating and maintenance personnel on recordkeeping requirements</p>
<b>Monitoring Frequency and Data Collection Procedures</b>	<p>Annual testing to demonstrate VOC destruction efficiency shall be in accordance with EPA Method 25A and application sections of Appendix A to 40 CFR Part 60.</p> <p>Annual analysis of the collected EPS samples shall be in accordance with BAAQMD Method 45 or SCAQMD Method 306-91.</p>	<p>VOC content with each separate bead lot used.</p> <p>VOC content of cleaning solvent, including VOC vapor pressure with each delivery.</p> <p>Monthly collection of boiler natural gas use, cleaning solvent used, lid manufacturing and printing production, quantity of cups manufactured by categorical type.</p> <p>Continuous collection of Boiler and Production operating times.</p>	<p>Monthly pentane recovery system duct inspection.</p> <p>Daily recording of pentane recovery system pressure drop.</p> <p>Continuous (at least four times each hour) boiler combustion chamber temperature.</p> <p>Periodic maintenance in accordance with O&amp;M Plan.</p>
<b><u>Performance Criteria:</u></b> <b>Data Representativeness</b>	<p>VOC destruction efficiency is accurate to within the standards of EPA Method 25A.</p> <p>Pentane content of expanded polystyrene beads is accurate to within the standards of BAAQMD Method 45 or SCAQMD Method 306-91</p>	<p>Data Representativeness criteria to not apply to recordkeeping.</p> <p>Boiler and operating times must be accurate to within fifteen minutes.</p>	<p>Boiler combustion chamber temperature is accurate to <math>\pm 2.2</math> degrees C or 0.75% of temperature recording.</p> <p>The range of the pentane recovery system pressure drop is -0.1 to +0.1 inch H<sub>2</sub>O, and the instrument is accurate to <math>\pm 1\%</math> of full scale.</p> <p>Data Representativeness criteria to not apply to recordkeeping.</p>