

RULE 2.41 EXPANDABLE POLYSTYRENE MANUFACTURING OPERATIONS

Adopted September 10, 2008

INDEX

100 GENERAL

- 101 PURPOSE
- 102 APPLICABILITY
- 110 EXEMPTION - Non-VOC Blowing Agent

200 DEFINITIONS

- 201 BLOWING AGENT
- 202 CERTIFICATE OF ANALYSIS (COA)
- 203 EMISSION CONTROL SYSTEM
- 204 EXPANDABLE POLYSTYRENE (EPS)
- 205 EPS PRODUCTS
- 206 EPS MANUFACTURING EMISSIONS
- 207 EPS MANUFACTURING OPERATION
- 208 LOW PENTANE BEAD
- 209 MID PENTANE BEAD
- 210 NON-VOC BLOWING AGENT
- 211 POLYMERIC MATERIAL
- 212 VOLATILE ORGANIC COMPOUND (VOC)

300 STANDARDS

- 301 EMISSION CONTROLS
- 302 RAW MATERIAL USAGE
- 303 SOURCE TESTING
- 304 VIOLATIONS

400 ADMINISTRATIVE REQUIREMENTS

- 401 COMPLIANCE SCHEDULE
- 402 EMISSION CONTROL SYSTEM OPERATION AND MAINTENANCE (O&M) PLANS

500 REPORTING AND RECORD KEEPING

- 501 REPORTING
- 502 RECORD KEEPING

600 TEST METHODS AND CALCULATIONS

- 601 GENERAL
- 602 FLOW
- 603 VOC LEAKS
- 604 CONTROL EFFICIENCY
- 605 PENTANE CONTENT
- 606 MOISTURE CONTENT
- 607 CAPTURE EFFICIENCY

100 GENERAL

- 101 **PURPOSE:** The purpose of this rule is to limit the emissions of volatile organic compounds (VOCs) from the manufacturing of expanded polystyrene (EPS) products.
- 102 **APPLICABILITY:** The provisions of this rule are applicable to any facility which manufactures EPS products.
- 110 **EXEMPTION - Non-VOC Blowing Agent:** The provisions of this rule shall not apply to any EPS manufacturing operation which uses only non-VOC blowing agents.

200 DEFINITIONS

- 201 **BLOWING AGENT:** Any liquid, gaseous, or solid material that facilitates the formation of a cellular product from raw polymeric material.
- 202 **CERTIFICATE OF ANALYSIS (COA):** A written document, originated by the EPS bead manufacturer, which cites the blowing agent content (expressed as percentage by weight) of the EPS bead in a specific manufactured bead lot prior to shipment from the manufacturer.
- 203 **EMISSION CONTROL SYSTEM:** A system for reducing manufacturing emissions, which consists of a capture system and a control device.
- 204 **EXPANDABLE POLYSTYRENE (EPS):** A lightweight closed-cell foam which is manufactured in a range of densities.
- 205 **EPS PRODUCTS:** Foam products which are manufactured from a series of processes where raw polymeric materials containing a blowing agent, such as beads, are expanded by exposure to steam or other expansion agent and subsequently molded into final product, such as blocks.
- 206 **EPS MANUFACTURING EMISSIONS:** Any VOC emissions which occur during an EPS manufacturing operation, prior to capture and control.
- 207 **EPS MANUFACTURING OPERATION:** Any EPS production line, or portion of a production line, which processes raw EPS bead into final EPS product and which results in VOC emissions into the atmosphere. Production line processes include, but are not limited to: pre-expansion, aging (pre-puff), and molding. The manufacturing process ends after the EPS product exits the mold.

- 208 **LOW PENTANE BEAD:** An expandable polystyrene bead containing pentane as a blowing agent with an upper limit less than 4.0 percent by weight, prior to shipment, as certified upon delivery by an accompanying bead manufacturer's COA.
- 209 **MID PENTANE BEAD:** An expandable polystyrene bead containing pentane as a blowing agent within the range of 4.0 to 5.2 percent by weight, prior to shipment, as certified upon delivery with an accompanying bead manufacturer's COA.
- 210 **NON-VOC BLOWING AGENT:** A blowing agent which does not contain VOCs.
- 211 **POLYMERIC MATERIAL:** A multi-molecular compound or mixture of compounds formed by polymerization and consisting essentially of repeating structural units.
- 212 **VOLATILE ORGANIC COMPOUND (VOC):** As defined in Rule 1.1, General Provisions and Definitions.

300 STANDARDS

- 301 **EMISSION CONTROLS:** All EPS manufacturing emissions shall be controlled by an emission control system which has a capture efficiency of at least 90% and a destruction efficiency of at least 95%.
- 302 **RAW MATERIAL USAGE:** All EPS products shall be manufactured with either low or mid pentane bead.
- 303 **SOURCE TESTING:** Each EPS manufacturing operation shall perform a source test to verify compliance with section 301 at least once every 12 calendar months, in accordance with a District-approved protocol and the test methods listed in section 600.
- 304 **VIOLATIONS:** Failure to comply with any provision of this rule shall constitute a violation of this rule. The owner or operator shall be liable for any penalties assessed in accordance with the California Health and Safety Code 42400.

400 ADMINISTRATIVE REQUIREMENTS

- 401 **COMPLIANCE SCHEDULE:** Facilities subject to the requirements of this rule shall demonstrate full compliance with all provisions by January 1, 2009.
- 402 **EMISSION CONTROL SYSTEM OPERATION AND MAINTENANCE (O&M) PLANS:** The owner/operator shall submit an O&M plan for the emission control system to the APCO for approval. The plan shall include procedures for collecting and recording required data and other information in a form approved by the APCO. The plan shall also include procedures and schedules for preventive and

corrective maintenance performed for the purpose of maintaining the emission control system in proper operating condition.

500 REPORTING AND RECORD KEEPING

501 **REPORTING:** All records required by this Rule shall be maintained on site for a period of five years and made available to the APCO upon request.

502 **RECORD KEEPING:** Owners and/or operators shall maintain the following records:

502.1 **EMISSION CONTROL SYSTEM:** Daily records of the operation and maintenance of the emission control system. These records shall include key system operating parameters such as temperatures, pressures, flow rates, and other measurements to demonstrate ongoing compliance with section 300.

502.2 **RAW MATERIAL USAGE:** Daily records of raw EPS bead processed and the associated blowing agent content, as specified on the applicable COA. A copy of each applicable COA shall be retained.

502.3 **FINISHED PRODUCT:** Daily records of the amount of EPS product made, including the approximate weight and density of each product.

600 TEST METHODS AND CALCULATIONS

601 **GENERAL:** For the purposes of this Rule, the following test methods (or their most recent approved versions) or calculation methods shall be used, upon review and approval by the District and EPA. Other test methods determined to be equivalent and approved in writing by the District and the EPA may also be used.

602 **FLOW:** Measurement of air flow and gas flow shall be conducted and reported in accordance with EPA Reference Methods 1 and 2, and their subparts.

603 **VOC LEAKS:** Measurement of VOC leaks shall be conducted and reported in accordance with EPA Reference Method 21.

604 **CONTROL EFFICIENCY:** Measurement of VOC concentration for determining control efficiency shall be conducted and reported in accordance with EPA Reference Method 25, and its subparts.

605 **PENTANE CONTENT:** Measurement of pentane content of materials shall be conducted and reported in accordance with SCAQMD Method 306-91.

606 **MOISTURE CONTENT:** Measurement of moisture content of gas shall be conducted and reported in accordance with EPA Reference Method 4.

607 **CAPTURE EFFICIENCY:** Measurement of capture efficiency shall be determined by the procedures contained in the EPA technical guidance document “Guidelines for Determining Capture Efficiency, January 9, 1995”, and EPA Reference Methods 204 A-F.