

RULE 1155. PARTICULATE MATTER (PM) CONTROL DEVICES

(a) Purpose

The purpose of this rule is to establish requirements for permitted particulate matter (PM) air pollution control devices, including, but not limited to, baghouses, high efficiency particulate air (HEPA) systems, bin vents, or other dust collectors using high efficiency or other air filters, cyclones, electrostatic precipitators, and wet scrubbers.

(b) Applicability

This rule applies to the operator of permitted PM air pollution control device(s) venting processes that have direct (non-combustion) PM emissions. A summary of key rule elements is provided in Table 1 of this rule.

(c) Definitions

- (1) BEST AVAILABLE CONTROL TECHNOLOGY (BACT) is as defined in South Coast Air Quality Management District (SCAQMD) Rule 1302 – Definitions, subdivision (h).
- (2) BAGHOUSE means an air pollution control device designed to remove PM from a gas stream using fabric filters in the shape of a tube or an envelope, or other air filters that are built into a frame or cartridge. For the purpose of this rule, baghouses are separated into three tiers based on the following characteristics:
 - (A) Tier 1: Baghouses for which the filter surface area is less than or equal to 500 square feet;
 - (B) Tier 2: Baghouses for which the filter surface area is greater than 500 square feet but less than or equal to 7,500 square feet; or
 - (C) Tier 3: Baghouses for which the filter surface area is greater than 7,500 square feet.
- (3) BAG LEAK DETECTION SYSTEM (BLDS) means a system that monitors electrical charge transfer based on triboelectricity or electrostatic induction to continuously monitor bag leakage and similar failures by detecting changes in particle mass loading in the exhaust.
- (4) BIN VENT means an air filtration dust collector designed to remove PM from the air that is displaced by materials filling silos and bins.

- (5) CONTINUOUS OPACITY MONITORING SYSTEM (COMS) means a system that meets minimum requirements specified under U.S. EPA 40 CFR Part 60, Appendix B, to continuously monitor opacity.
- (6) CYCLONE means an air pollution control device designed to remove PM from a gas stream by inertia.
- (7) ELECTROSTATIC PRECIPITATOR (ESP) means an air pollution control device designed to remove PM from a gas stream by imparting a high voltage direct current (DC) charge to the particles while simultaneously ionizing the carrier gas, producing an electric corona.
- (8) EXISTING PM CONTROL DEVICE means a PM air pollution control device installed or for which an application for a permit has been deemed complete on or before December 4, 2009.
- (9) FACILITY means any source or group of sources or other air contaminant-emitting activities which are subject to this rule and are located on one or more contiguous properties within the SCAQMD, in actual physical contact or separated solely by a public roadway or other public right-of-way, and are owned or operated by the same person (or by persons under common control), or an outer continental shelf (OCS) source as determined in 40 CFR Section 55.2. Such above-described groups, if noncontiguous, but connected only by land carrying a pipeline, shall not be considered one facility. Sources or installations involved in crude oil and gas production in Southern California Coastal or OCS Waters and transport of such crude oil and gas in Southern California Coastal or OCS Waters shall be included in the same facility which is under the same ownership or use entitlement as the crude oil and gas production facility on-shore.
- (10) NEW PM CONTROL DEVICE means a PM air pollution control device for which an application for a permit has been deemed complete after December 4, 2009.
- (11) NON-CONTINUOUS PROCESS means an emissions generating activity vented to a PM air pollution control device that operates no more than once per week or for periods of less than one hour, not to cumulatively exceed 4 hours during any single day.
- (12) VERIFIED FILTRATION PRODUCT means a filtration product that has been verified under the U.S. EPA Environmental Technology Verification (ETV) program at the time of purchase. Manufacturers whose filtration

product verification has expired must demonstrate at the time of purchase that the product is the same as was previously tested and verified under the ETV program.

- (13) WET SCRUBBER means an air pollution control device designed to remove PM from a gas stream by using a finely atomized stream of liquid to capture particulate matter pollutants.

(d) General Requirements

- (1) Beginning April 1, 2010, the operator of a facility shall not cause or allow any visible emissions (excluding condensed water vapor) from any PM air pollution control device required to have a permit.
- (2) No later than January 1, 2011, the operator of any Tier 3 baghouse shall meet an outlet PM concentration of less than or equal to 0.01 grains per dry standard cubic foot (gr/dscf).
- (A) Notwithstanding the above, the operator of hot mix asphalt production equipment shall comply with the 0.01 gr/dscf limit no later than January 1, 2013, unless the operator has documentation that demonstrates that new fabric filters have been installed within 12 months prior to December 4, 2009, in which case the hot mix asphalt production equipment shall comply by January 1, 2014 or at the end of the filter useful life, whichever occurs sooner.
- (3) No later than April 1, 2010, all permitted PM control devices shall be operated and maintained in accordance with the manufacturer's operation and maintenance manual or other similar written materials supplied by the manufacturer or distributor of a control device to ensure that the control device remains in proper operating condition. If such documents are not available, the operator shall provide and follow written operation and maintenance procedures for the PM control device(s). Such documentation shall be made available to the Executive Officer immediately upon request.
- (4) No later than January 1, 2012 or after the end of the useful life of a manual shaker unit, whichever occurs sooner, the operator of an existing manual shaker baghouse shall upgrade or replace it with, at a minimum, an automated shaker unit.
- (5) An operator shall not install a manual shaker baghouse after December 4, 2009.

- (6) If the PM emission limit in paragraph (d)(2) is exceeded, the operator shall file a permit application to use verified filtration products, as defined in paragraph (c)(12), or other technologies or methods demonstrated through source test pursuant to paragraph (e)(6) to comply with the requirement in paragraph (d)(2), within three months of discovery by the operator or of notification by the Executive Officer, to replace the existing filter bags or cartridges. The operator shall install the verified filtration products within three months of issuance of the permit.
 - (7) If the operator discovers the exceedance of the PM limit in paragraph (d)(2) and resolves the problem that led to the exceedance, within 24 hours of discovery, the operator would not be subject to the requirements in paragraph (d)(6).
 - (8) When a new process is vented to a new baghouse, the operator shall install and maintain a ventilation system that meets a minimum capture velocity requirement specified in the applicable standards of the most current Edition of the U.S. Industrial Ventilation Handbook, American Conference of Governmental Industrial Hygienists, at the time of installation.
 - (9) The operator shall discharge material collected in a permitted PM control device for disposal or bring the material back to the process through a controlled material transfer system to prevent fugitive emissions during material transfer, including, but not limited to, shrouding or use of dust suppressants to stabilize the material.
 - (10) Until more stringent requirements of this rule are effective and after, if still applicable, the operator shall operate and maintain all existing PM air pollution control devices according to existing SCAQMD permit conditions.
 - (11) For any new or modified PM air pollution control device subject to BACT, the operator of such device shall meet the more stringent BACT level established for that device (pursuant to SCAQMD BACT Guidelines) at the time of evaluation of the permit application for the device.
- (e) Monitoring Requirements
- (1) No later than March 31, 2010, the operator shall have a minimum of one person trained in the reading of visible emissions pursuant to EPA Method

22. Beginning April 1, 2010, the operator of any baghouse or other PM control device shall have the trained person conduct a continuous five-minute visible emissions observation using EPA Method 22 once a week and shall maintain records for each observation and any necessary subsequent action(s) taken to eliminate visible emissions pursuant to subdivision (f). The provisions of this paragraph shall apply to Tier 3 baghouse units up to and until compliance with the provisions of paragraph (e)(3).

- (A) If the operator observes any visible emissions exiting at any time, including during a scheduled Method 22 test, the operator shall implement, within 24 hours, all necessary corrective actions to eliminate the visible emissions.
- (B) To verify corrective actions were effective, the operator must restart the operations and complete a new Method 22 test to ensure no visible emissions are present. If visible emissions are still present, further corrective actions pursuant to subparagraph (e)(1)(C) must be taken. If no visible emissions are present, normal operations may resume.
- (C) If the operator, after taking all corrective actions, subsequently observes visible emissions, the operator shall shut down the PM emitting equipment that vents into the control device, unless the baghouse operation can be adjusted to ensure no visible emissions, until necessary steps are taken to prevent the visible emissions. Baghouse adjustments include, but are not limited to, closing off specific baghouse chambers.
- (D) If the activity being observed is consistently a duration of less than five minutes, then the Method 22 observation shall be for the period in which the activity takes place.
- (E) An operator shall not be considered in violation of this paragraph and (d)(1), if the operator complies with subparagraphs (e)(1)(A) through (e)(1)(D).
- (F) To the extent that multiple Method 22 tests can be conducted simultaneously, the operator may observe multiple sources contemporaneously at a single time as long as all of the sources are located in the field of view of the observer and appropriate records are kept for each observation. If the operator observes a visible

emissions problem during the reading, each source shall then be monitored separately.

- (2) Notwithstanding the requirements of paragraph (e)(1), any baghouse outfitted completely with verified filtration products shall only be required to conduct visible emission observations once per month, pursuant to paragraph (e)(1), and shall maintain records for each Method 22 observation and any subsequent actions taken to eliminate visible emissions.
- (3) The operator of any Tier 3 baghouse shall install, operate, calibrate and maintain a BLDS pursuant to the manufacturer's written recommendations, to monitor baghouse performance and ensure compliance with in paragraphs (d)(1) and (d)(2).
 - (A) The provisions of this paragraph shall apply to any new Tier 3 baghouse installed and operated as of December 4, 2009. For an existing baghouse, the facility operator shall file a permit application for a BLDS no later than May 1, 2010 and shall install the BLDS within three months of issuance of the permit.
 - (B) The BLDS system shall meet the following minimum requirements:
 - (i) The BLDS sensor must provide output of relative PM emissions; and
 - (ii) The BLDS must have an alarm that will activate automatically when it detects significant increase in relative PM emissions greater than a preset level and the presence of an alarm condition should be clearly apparent to the facility operator.
 - (C) The operator shall install a BLDS that has been certified by the manufacturer to be capable of alarming automatically before visible emissions can be seen in the exhaust of a baghouse and shall set the BLDS to operate at such level. The baseline output for the system must be established as follows:
 - (i) Adjust and maintain the range and the averaging period of the device for the specific application per the manufacturer's written specifications and recommendations; and

- (ii) Establish and maintain the alarm set points and the alarm delay time per the manufacturer's written specifications and recommendations.
 - (D) The operator shall perform adequate maintenance and inspections of a BLDS, according to the written specifications and recommendations of the manufacturer, to ensure that the monitor is operating properly at all times and shall maintain the records pursuant to subdivision (f).
 - (E) If the operator receives an alarm from the BLDS, the operator shall investigate the baghouse and the BLDS, and take all necessary corrective actions to eliminate the cause of the alarm.
 - (F) The operator shall maintain filters and operate the baghouse such that the BLDS alarm activation is minimized and the cumulative number of hours of alarm activation within any continuous six-month rolling period do not exceed more than five percent of the total operating hours in that period after following the procedures of subparagraph (e)(3)(G), including, but not limited to, shut down of the equipment as specified.
 - (G) Each time the alarm activates, the operator shall count the alarm time as the actual length of time of the elevated emissions that caused the alarm and record it. If the inspection of the baghouse, pursuant to subparagraph (e)(3)(E), demonstrates that no visible emissions are occurring in conjunction with the alarm and that no corrective actions are necessary to the baghouse equipment, no alarm time will be counted. If cumulative alarm time exceeds five percent of the total operating hours based on any continuous six-month rolling period, the operator shall shut down the equipment that vents into the baghouse until necessary actions are taken to eliminate the elevated emissions.
- (4) Notwithstanding the provisions of paragraph (e)(1) and subparagraph (e)(3)(A) applicable to Tier 3 units, the operator of hot mix asphalt production equipment may conduct daily visible emissions monitoring, as described in paragraph (e)(1), in lieu of BLDS installation, provided the facility operator notifies the Executive Officer in writing no later than May 1, 2010, files a permit application for a BLDS no later than June 1, 2011, and installs the BLDS within three months of issuance of the permit,

at which time the operator shall comply with the provisions of paragraph (e)(3). Daily visible emissions monitoring shall begin no later than January 1, 2011 and continue until such time the BLDS is installed. The operator shall maintain records for each observation and any subsequent actions taken to eliminate visible emissions during the time in which daily visible emissions monitoring is conducted.

- (5) No later than January 1, 2015 or after the end of the useful life of a COMS, whichever occurs sooner, a COMS installed at an existing Tier 3 baghouse shall be changed to a BLDS.
 - (6) Source tests conducted to demonstrate compliance with paragraph (d)(2) shall follow SCAQMD Methods 5.1, 5.2, or 5.3, as applicable.
 - (A) For a baghouse located at a Title V facility, the facility operator shall conduct an initial source test no later than January 1, 2011 to demonstrate compliance with the requirements of paragraph (d)(2). Subsequent source tests shall be conducted every five years thereafter.
 - (B) Source tests shall be conducted by an approved lab from the SCAQMD Laboratory Approval Program. For the purpose of this rule, the total weight of PM in solid and liquid form should be considered when conducting source tests.
- (f) Recordkeeping
- Records shall be kept in a format approved by the Executive Officer to demonstrate compliance with the provisions of this rule, and all records and information recorded pursuant to this subdivision shall be maintained at the facility for a minimum of five years and shall be made available to the Executive Officer immediately upon request.
- (1) For the purposes of paragraph (e)(1), records kept shall include, but not be limited to:
 - (A) Facility name;
 - (B) Observer's name and affiliation;
 - (C) Date and time of observation;
 - (D) Process unit(s) being observed;
 - (E) Observer's position relative to the source;
 - (F) Observation duration;

- (G) Whether visible emissions occurred and cumulative amount of time visible emissions occurred; and
 - (H) If visible emissions were observed, what actions were taken to correct the problem causing them, including and up to date and time of equipment shutdown, if applicable.
- (2) For the purposes of paragraph (e)(3), records kept shall include, but not be limited to:
- (A) Facility name;
 - (B) Facility representative for maintaining the BLDS;
 - (C) Date and time of routine maintenance and inspections conducted on BLDS;
 - (D) The date and time of any alarm, including length of the alarm time, and cause of the alarm;
 - (E) The date and time corrective action is completed to eliminate the cause of the alarm;
 - (F) Whether visible emissions occurred; and
 - (G) Total operating hours of the baghouse.
- (g) Exemptions
- (1) With the exception of paragraph (d)(1), any baghouse for which the filter surface area is less than or equal to 100 square feet is exempt from the provisions of this rule.
 - (2) The operator of a PM air pollution control device venting a non-continuous process is exempt from the provisions of paragraph (e)(1), provided no visible emissions occur when the process activity takes place.
 - (3) Any equipment with an active permit to operate that is not in operation as of December 4, 2009 shall be exempt from the provisions of this rule until operations commence.
 - (4) Facility operations that are subject to District Rules 1105.1 – Reduction of PM₁₀ and Ammonia Emissions from Fluid Catalytic Cracking Units, and 1156 – Further Reductions of Particulate Emissions from Cement Manufacturing Facilities, are exempt from the provisions of this rule.
 - (5) The operator of a Tier 1 or Tier 2 baghouse that voluntarily installs, operates, calibrates and maintains a BLDS pursuant to paragraph (e)(3) shall be exempt from the visible emissions provisions of paragraph (e)(1).
 - (6) Bin vents are exempt from the provisions of paragraph (e)(1).

- (7) The provisions of paragraphs (d)(1), (d)(2), (d)(6), and (e)(1), and subparagraphs (e)(3)(E) through (e)(3)(G) shall not apply during the one-half hour of start-up of the equipment or process venting to the PM air pollution control device, including start-up after a repair to fix an equipment breakdown or after a scheduled maintenance activity. During that one-half hour starting period, PM air pollution control devices under this rule remain subject to the PM concentration (grain loading) requirements of Rule 404 and an opacity requirement of no greater than No. 1 on the Ringelmann Chart as specified in Rule 401 (b)(1) [shown as Rule 401 (a) in the SIP-approved version, as amended March 2, 1984, and SIP-approved on January 29, 1985].
- (8) For PM air pollution control devices connected in series, the provisions of paragraphs (d)(2), (d)(6), and (e)(1) shall only apply to the PM air pollution control device exhausting to the atmosphere. In the event a Tier 3 baghouse is not the last in the series to vent to the atmosphere, the provisions of paragraph (e)(3) shall not apply.
- (9) Any paint spray booth or powder spray booth is exempt from the provisions of this rule.
- (10) Air pollution control equipment exclusively venting organic gases from hot mix asphalt load-out operations and directly related equipment, including storage silos, conveyors, mills, and batching towers, are exempt from the provisions of this rule.
- (11) With the exception of paragraph (d)(1), any portable dust collector, fume extractor, or negative air machine with a maximum rated capacity of less than or equal to 3,000 cfm is exempt from the provisions of this rule.
- (12) With the exception of paragraph (d)(1), facility operations that are subject to District Rule 1469 - Hexavalent Chromium Emissions from Chromium Electroplating and Chromic Acid Anodizing Operations are exempt from the provisions of this rule.
- (13) With the exception of paragraph (d)(1), high efficiency particulate air (HEPA) equipment are exempt from the provisions of this rule.

Table 1
Summary of Requirements

Fabric Filtration PM Air Pollution Control Equipment (baghouses)*			Other Fabric and Non-Fabric Filtration PM Air Pollution Control Equipment (dust collectors, cyclones, ESPs, wet scrubbers)*
Tier 1	Tier 2	Tier 3	n/a
≤ 500 square feet	> 500 – 7,500 square feet	> 7,500 square feet	n/a
Once-a-week visible emissions monitoring and recordkeeping (new, existing)	Once-a-week visible emissions monitoring and recordkeeping (new, existing)	Until BLDS is installed, once-a-week visible emissions monitoring and recordkeeping	Once-a-week visible emissions monitoring and recordkeeping (new, existing)
--	--	BLDS installation (new, existing)	--
--	--	Emission limit (0.01 gr/dscf)	--
		Title V facilities conduct initial source test and test every five years relative to compliance with the emission limit.	

* Except as provided in subdivision (g) Exemptions.