

RULE 430 COMPOSTING OPERATIONS
(Adopted – 12/22/2020)

A Purpose

The purpose of this rule is to limit emissions of Volatile Organic Compounds (VOC) and Ammonia from Composting, Co-Composting and related operations involving Animal Manure and Poultry Litter.

B Applicability

The provisions of this rule apply to new and existing Composting and Co-Composting operations only.

C Definitions

The following definitions apply for all terms applicable to this Rule. If a term is not defined within this Rule, then the definitions provided in Rule 101, Definitions, shall apply.

C.1 Active Composting: the phase of the composting process that begins when organic materials are mixed together for composting and lasts until one of the following conditions is met:

C.1.1 The organic material emits no more than seven (7) mg carbon dioxide per gram of organic material (CO₂-C) per day, as measured using the TMECC Method 05-08-B (Carbon Dioxide Evolution Rate); or

C.1.2 The material has a Solvita Maturity Index of 5 or greater as measured using the TMECC Method 05-08-E(Solvita Maturity Test); or

C.1.3 The material has been composted for a period of at least 15 consecutive calendar days.

C.2 Alternative Mitigation Measure: a Mitigation Measure, proposed by the Operator, that is determined by the APCO and EPA to achieve VOC reductions that are equal to or greater than the VOC reductions that would be achieved by other Mitigation Measures listed in this rule, that Operators could choose as a means of complying with rule requirements.

C.3 Animal Manure: non-human animal excretions and waste, including, but not limited to, dried solids and urine from cows, cattle, or swine.

- C.4 Background: a reading on a hydrocarbon analyzer that is measured at a distance no greater than two (2) meters upwind from any component to be inspected and which is not influenced by any specific emission point.
- C.5 Backyard Composting: Composting conducted by a household, including but not limited to, single-family residences, duplexes or apartment buildings, generated on-site to be used on-site.
- C.6 CARB: The California Air Resources Board
- C.7 Co-composting: Composting where Animal Manure and/or Poultry Litter is mixed with other materials, including amendments, to produce compost. Co-Composting includes both the active and curing phases of the Composting process.
- C.8 Compostable Material: any organic material that is capable of undergoing Active Composting.
- C.9 Composting: the controlled biological decomposition of organic material, such as Animal Manure, or crop residues, under aerobic (with air) or anaerobic (without air) conditions to form a humus-like material.
- C.10 Composting Facility: any facility where Composting or Co-Composting occurs. Unless exempt under Section D of this rule, only those Composting/co- Composting facilities that use Animal Manure, or Poultry Litter as part of the Composting or Co-Composting operation are subject to this rule.
- C.11 Curing Composting: the phase of the Composting process that begins immediately after the end of the active phase of Composting and lasts until one of the following conditions is met:
- C.11.1 The organic material emits no more than four (4) mg CO₂-C per gram of organic material per day, as measured using the TMECC Method 05-08-B (Carbon Dioxide Evolution Rate); or
 - C.11.2 The compost has a Solvita Maturity Index of 7 or greater, as measured using the TMECC Method 05-08-E (Solvita Maturity Test); or
 - C.11.3 The material has been composted at least 20 consecutive calendar days after the Active Composting period.

- C.12 Finished Compost: a humus-like material that meets at least one of the following conditions:
- C.12.1 Emits no more than four (4) mg CO₂-C per gram of organic material per day, as measured using the TMECC Method 05-08-B (Carbon Dioxide Evolution Rate);
 - C.12.2 Has a Solvita Maturity Index of 7 or greater, as measured using the TMECC Method 05-08-E (Solvita Maturity Test);
 - C.12.3 Has completed both the active and curing phases of Composting.
- C.13 Greenwaste: is any organic waste material generated from gardening, agriculture, or landscaping activities including, but not limited to, grass clippings, leaves, tree and shrub trimmings, and plant remains.
- C.14 Greenwaste Composting: is composting of greenwaste by itself or greenwaste in combination with up to 20% manure, by volume.
- C.15 Hydrocarbon Vapor Analyzer: a hand-held portable hydrocarbon analyzer that meets the following criteria: a) shall be a flame ionization detector, b) operated per manufacturer's instructions, and c) Calibrated with certified zero and 10 ppmv methane standards.
- C.16 Mitigation Measure: an activity, work practice, or technology that reduces VOC air pollutants emitted by or associated with the management of Animal Manure or Poultry Litter.
- C.17 Operator: any person who owns, leases, supervises, or operates a facility that processes Animal Manure, or Poultry Litter, or equipment on such a facility.
- C.18 Pile: material that is accumulated together.
- C.19 Poultry Litter: poultry excretions and waste, including, but not limited to, dried solids and urine from chickens, turkeys, geese, or ducks.
- C.20 Recreational Facilities Composting: Composting conducted at parks, arboretums and other recreational facilities using Feedstock generated on-site to produce Compost for on-site use.
- C.21 SCAQMD: The South Coast Air Quality Management District.
- C.22 Solvita Maturity Index: an index that defines the stage where compost exhibits resistance to further decomposition, as tested by the Solvita Maturity Test®.

- C.23 Throughput: the weight of material to be processed, as it is received or generated at the facility subject to this rule, prior to any dewatering or treatment at the receiving facility. Throughput includes the weight of moisture present in the received materials.
- C.24 TMECC: Test Methods for the Examination of Composting and Compost by the US Composting Council Research and Education Foundation.
- C.25 Volatile Organic Compounds (VOC): as defined in Rule 101 (Definitions).
- C.26 Water Cap: is the windrow having water applied over the entire windrow (i.e., water truck or sprinkler system) to create a crust that encapsulates the windrow creating a seal sufficient to reduce fugitive emissions. This process is not suitable for green waste as green waste is too porous to seal.

D Exemptions

The provisions of this rule shall not apply to the following facilities;

- D.1 Recreational Facilities Composting
- D.2 Backyard Composting

E Requirements

Composting/Co-Composting Operations General Process Controls
(Best Management Practices)

- E.1 Facilities engaged in Composting/Co-Composting operations, with a throughput of less than 100,000 wet tons per year shall meet either E.1.1 or E.1.2.
- E.1.1 Implement at least three (3) Mitigation Measures listed in Table A
- E.1.2 Implement at least two (2) Mitigation Measures listed in Table A plus one (1) Mitigation Measure for either active or curing composting listed in Table B.
- E.2 Facilities engaged in Composting/Co-Composting operations, with a throughput of at least 100,000 wet tons per year or more shall meet either E.2.1 or E.2.2.
- E.2.1 Implement at least four (4) Mitigation Measures listed in Table A plus one (1) Mitigation Measure for either active or curing composting listed in Table B

E.2.2 Implement at least three (3) Mitigation Measures listed in Table A plus two (2) Mitigation Measures for either active or curing composting listed in Table B

If a tested parameter is found to be outside the applicable limits specified, the Operator shall take remedial action within 24 hours of discovery to bring Pile characteristics within the specified limits.

TABLE A

<p>A Scrape or sweep, at least once a day, all areas where Compostable Material is mixed, screened, or stored such that no Compostable Material greater than one inch (1”) in height is visible in the areas scraped or swept immediately after scraping or sweeping, except for Compostable Material in process Piles or storage Piles.</p>
<p>B Maintain a minimum oxygen concentration of at least five percent (5%), by volume, in the free air space of every active compost Pile, testing each active compost pile-at least once bi-monthly using the TMECC Method 05-08-C (In-Situ Oxygen Refresh Rate) or using a portable oxygen analyzer that meets the most current ASTM standards.</p>
<p>C Turn Active Piles five (5) times during the active phase and turn Curing Piles once (1) during the Curing Phase testing the oxygen concentration bi-monthly using a portable oxygen analyzer obtaining a minimum oxygen concentration of at least five percent (5%), by volume.</p>
<p>D Establish an initial carbon to nitrogen ratio of not less than 20:1 in Active Compost Piles by testing the material when it is prepared for Active Composting using the TMECC Method 05-02-A (Carbon to Nitrogen Ratio). Testing shall be done once a quarter when materials are mixed. Samples shall be representative of the initial composition of the active compost Pile.</p>
<p>E Maintain moisture content between 30 percent to 70 percent, by weight. Testing Active Piles at least once a week using TMECC Method 03-09-A (Total Solids and Moisture at 70 ± 5 degrees Centigrade) or testing once a week using a portable moisture meter.</p>
<p>F Maintain moisture content between 20 percent to 30 percent, by weight. Testing Curing Piles at least once every 20 days using TMECC Method 03-09-A or testing once a week using a portable moisture meter.</p>
<p>G Cover all active compost Piles with one of the following: a waterproof covering; at least six (6) inches of Finished Compost, at least six (6) inches of soil, or a one (1) inch water cap creating a visible crust.</p>

TABLE A

<p>H Cover all curing compost Piles with one of the following: a waterproof covering; at least six (6) inches of Finished Compost, at least six (6) inches of soil, or a one (1) inch water cap creating a visible crust</p>
<p>I Implement an Alternative Mitigation Measure(s), approved by the Air District, not listed in Table A that demonstrates at least a 10 % reduction, by weight, in VOC emissions.</p>

TABLE B

<p>H Conduct all active or all curing composting in aerated static pile(s) vented to a VOC emission control device with a VOC control efficiency of at least 80% by weight. Aerated static pile(s) shall have no measurable increase (<0.45 ppmv increase) over background levels of hydrocarbons within three feet of any surface of the aerated static pile and shall be tested as follows:</p>
<p>a. The operator shall test for VOC's once each calendar quarter; the location and number of test points for aerated static pile composting system shall be determined using TMECC 02.01-B (Selection of Sampling Locations for Windrow and Piles)</p>
<p>b. An operator shall monitor key system operating parameters of the VOC emission control device (not a biofilter), that demonstrate continuous operation and compliance of the VOC emission control device during composting operations. In addition, the VOC emission control device shall be operated and maintained in accordance with the manufacturer's recommendations.</p>
<p>c. The control efficiency of the VOC emission control system (Biofilter or Non-Biofilter) shall be determined using EPA Methods 2, 2A, or 2D for measuring flow rates and EPA Methods 25, 25A, or 25B for measuring total gaseous organic concentrations at the inlet and outlet of the control device. EPA Method 18 or CARB Method 422 shall be used to determine the emissions of exempt compounds.</p>
<p>I Conduct all active or all curing composting in an in-vessel composting system vented to a VOC emission control device with a VOC control efficiency of at least 80% by weight. An in-vessel composting operation shall have no measurable increase (< 0.45 ppmv increase) over background levels of hydrocarbons outside the in-vessel enclosure, including any opening that occurs briefly for access or maintenance.</p>
<p>a. The operator shall test for VOC's once each calendar quarter; the location and number of test points for aerated static pile composting system shall be determined using TMECC 02.01-B (Selection of Sampling Locations for Windrow and Piles). The openings of an in-vessel composting system shall be tested according to the test method specified in subsection E.1.7.d.</p>

TABLE B

b. An operator using a biofilter as a VOC emission control device shall maintain all biofilters at their facility in such a manner that each biofilter complies with the following conditions at all times when in operation:
i. The biofilter media temperature is between 70 degrees Fahrenheit and 110 degrees Fahrenheit.
ii. The moisture content of the biofilter media is between 40% and 70% by weight.
iii. The pH of the biofilter media is between 6.5 and 8.
iv. Visual inspection at least once each week: The biofilter media is free of observable rodent burrows, cracks, and channeling. Weed coverage shall be less than 10% of the exposed surface of the biofilter.
v. At least once per calendar month, the biofilter shall be tested in five separate, evenly spaced locations throughout the biofilter: temperature, moisture and pH.
c. Source Testing Requirement: The VOC emission control device (biofilter or non-biofilter) shall be tested for VOC control efficiency within ninety days of installation and every two years thereafter and under representative operating conditions, such as compost composition, process throughput and pile geometries.
i. A request for a longer time between installation and source test may be made if the operator can show, to the satisfaction of the Air District, that a longer time is necessary. In no case shall the time between installation and the source test be greater than six (6) months.
d. The control efficiency of a biofilter shall be determined using SCAQMD Method 25.3 (Determination of Low Concentration Non-Methane Non-Ethane Organic Compound Emissions from Clean Fueled Combustion Sources.) The SCAQMD Method 25.3 apparatus should be connected to sample directly inside the flux chamber or duct as applicable. Compost emissions are considered as water-soluble sources where the 50 ppm applicability limit of Method 25.3 does not apply. Samples from more than one location may be combined (composited) per SCAQMD Rule 1133.2 Attachment A Section 8.
J Implement an Alternative Mitigation Measure(s), approved by the Air District, not listed in Table B that demonstrates at least an 80% reduction, by weight, in VOC emissions.

F Administrative Requirements

F.1 An Operator of a Composting/Co-Composting facility subject to this rule shall maintain the following records:

F.1.1 Throughput Records. On a daily basis, an Operator shall record the quantity of materials received that would be used in the compost/co-compost operation. These materials include, but are not limited to, material that may be recovered from the Composting process for reuse in another batch of Compostable Material; Animal Manure; Poultry Litter; and green waste.

F.1.2 Mitigation Measure Records. An Operator shall keep records that demonstrate that the facility meets the Mitigation Measures selected for the applicable throughput of the facility each day that a Mitigation Measure is performed. For Operators using an approved Alternative Mitigation Measure, the Operator shall keep records for the Alternative Mitigation Measure each day the Alternative Mitigation Measure is performed.

F.1.3 Portable Analyzer Moisture Content Records: An Operator shall keep records that demonstrate that the facility meets the Mitigation Measures selected for the applicable Portable Analyzer Moisture content of the facility each day that the Mitigation Measure is performed.

F.1.4 VOC Inspection Records for Table B Measures. The operator shall maintain an inspection logbook. The logbooks shall contain the date of the VOC inspection and the reading of the portable hydrocarbon analyzer in ppmv for each inspection location. If an alternate parameter is monitored, list the parameter monitored and record the level of the alternate parameter for each inspection location.

F.1.5 Biofilter Records for Table B Measures. In addition to F.1.1 and F.1.2 an operator using a biofilter as a VOC emission control device shall keep records with that contain the date of the biofilter monitoring, the parameter monitored, with test results for the parameter monitored. If an alternate parameter is monitored, list the parameter monitored and record the level of the alternate parameter for each inspection location.

F.1.6 Non-Biofilter VOC Emission Control Device Records for Table B Measures. An operator using a VOC emission control system that is not a biofilter as a means of complying with this rule shall maintain daily records of key system operating parameters which will demonstrate continuous operation and compliance of the VOC

emission control system during composting operations. Examples of key system operation parameters include, but are not limited to, temperature, pressure and flow rates.

G Records Retention

The owner or Operator subject to this rule shall maintain all records required by this rule for a minimum of five (5) calendar years. These records shall be maintained on the premises and made available to the Air District upon request.

H Additional Test Methods

H.1 Compost Maturity/Stability.
Any of the following test methods.

H.1.1 TMECC Method 05-08-B (Carbon Dioxide Evolution Rater); or

H.1.2 TMECC Method 05-08-E (Solvita maturity Test®)

H.2 Biofilter Test Methods

H.2.1 Temperature – EPA Method 170.1 (Temperature – Thermometric)

H.2.2 Moisture Content – TMECC Method 03.09 (Total Solids and Moisture at 70+5 degrees Centigrade)

H.2.3 Media pH – TMECC method 04.11-A (1:5 Slurry pH)

H.2.4 VOC – EPA Method 21 (VOC Leaks)