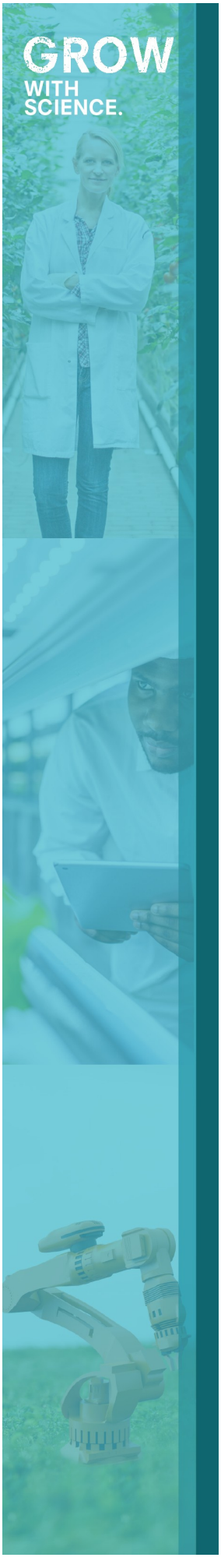

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Appendix E

Environmental Health Standards for Composting Operations

CCR Title 14, Division 7, Chapter 3.1, Article 7

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California Code of Regulations, Title 14, Division 7,
Chapter 3.1 Composting Operations Regulatory Requirements

Article 7. Environmental Health Standards

Section 17868.1. Sampling Requirements.
All composting operations that sell or give away greater than 1,000 cubic yards of compost annually, and all composting facilities shall meet the following requirements:
(a) Operators shall verify that compost meets the maximum acceptable metal concentration limits specified in section 17868.2 and pathogen reduction requirements specified in section 17868.3. Verification of maximum acceptable metal concentrations and pathogen reduction requirements shall occur prior to the point where compost is removed from the site or beneficially used on-site. Test results of samples must be received by the operator prior to removing compost from the composting operation or facility where it was produced. This verification shall be performed by taking and analyzing at least one composite sample of compost, following the requirements of this section as follows:

(1) An operator who composts agricultural material, green material, food material, vegetative food material, or mixed material shall take and analyze one composite sample for every 5,000 cubic-yards of compost produced. If the composting operation or facility produces less than 5,000 cubic-yards of compost in a 12 month period, the operator shall analyze at least one composite sample of compost produced every 12 month period.

(2) An operator who composts biosolids shall meet the sampling schedule described in Table 2 below.

Table 1 - Frequencies of Compost Sampling for Biosolids Composting Facilities

Amount of Biosolids Compost Feedstock (metric tons per 365-day period)	Frequency
Greater than zero but annually fewer than 290	annually
Equal to or greater than 290 but fewer than 1,500	quarterly
Equal to or greater than 1,500 but fewer than 15,000	bimonthly
Equal to or greater than 15,000	monthly

(A)The amount of biosolids compost feedstock shall be calculated in dry weight metric tons.

(3) Composite sample analysis for maximum acceptable metal concentrations, specified in section 17868.2, shall be conducted at a laboratory certified by the California Department of Public Health, pursuant to the Health and Safety Code.

(b) A composite sample shall be representative and random, and may be obtained by taking twelve (12) mixed samples as described below.

(1) The twelve samples shall be of equal volume.

(2) The twelve samples shall be extracted from within the compost pile as follows:

(A) Four samples from one-half the width of the pile, each at a different cross-section;

(B) Four samples from one-fourth the width of the pile, each at a different cross-section; and,

(C) Four samples from one-eighth the width of the pile, each at a different cross-section.

(c) The EA may approve alternative methods of sampling that ensure the maximum metal concentration requirements of section 17868.2 and the pathogen reduction requirements of section 17868.3 are met.

Note: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

Section 17868.2. Maximum Metal Concentrations.

(a) Compost shall not contain metals in excess of the maximum acceptable metal concentrations shown in Table 3. Compost that contains any metal in excess of any maximum metal concentrations shall be designated for additional processing, disposal, or other use as approved by local, state and federal agencies having jurisdiction. Test results of samples must be received by the operator prior to removing compost from the composting operation or facility where it was produced.

Table 2
Maximum Acceptable Metal Concentrations

Constituent	Concentration (mg/kg) on dry weight basis
Arsenic (As)	41
Cadmium (Cd)	39
Chromium (Cr)	See subdivision (a)(1) below
Copper (Cu)	1500
Lead (Pb)	300
Mercury (Hg)	17

Nickel (Ni)	420
Selenium (Se)	100
Zinc (Zn)	2800

(1) Although there is no maximum acceptable metal concentration for chromium in compost, operators subject to subdivision (a) shall arrange for concentrations of chromium in compost they produce to be determined in connection with the analysis of other metals. Operators shall maintain records of all chromium concentrations together with their records of other metal concentrations.

(b) Alternative methods of compliance to meet the requirements of this section may be approved by the EA if the EA determines that the alternative method will ensure that the maximum acceptable metal concentrations shown in Table 3 are not exceeded.

Note: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

Section 17868.3. Pathogen Reduction.

(a) Compost shall not exceed the maximum acceptable pathogen concentrations described in Subdivision (b) of this section. Compost that contains any pathogens in amounts that exceed these pathogen reduction requirements shall be designated for additional processing, disposal, or other use as approved by local, state or federal agencies having appropriate jurisdiction. Test results of samples must be received by the operator prior to removing compost from the composting operation or facility where it was produced.

(b) Operators that produce compost shall ensure that:

(1) The density of fecal coliform in compost, that is or has at one time been active compost, shall be less than 1,000 Most Probable Number per gram of total solids (dry weight basis), and the density of Salmonella sp. bacteria in compost shall be less than three (3) Most Probable Number per four (4) grams of total solids (dry weight basis).

(2) At enclosed or within-vessel composting process operations and facilities, active compost shall be maintained at a temperature of 55 degrees Celsius (131 degrees Fahrenheit) or higher for a pathogen reduction period of 3 days.

(A) Due to variations among enclosed and within-vessel composting system designs, including tunnels, the operator shall submit a system-specific temperature monitoring plan with the permit application to meet the requirements of Subdivision (b)(2) of this section.

(3) If the operation or facility uses a windrow composting process, active compost shall be maintained under aerobic conditions at a temperature of 55 degrees Celsius (131 degrees Fahrenheit) or higher for a pathogen reduction period of 15 days or longer. During the period when the compost is maintained at 55 degrees Celsius or higher, there shall be a minimum of five (5) turnings of the windrow.

(4) If the operation or facility uses an aerated static pile composting process, all active

compost shall be covered with 6 to 12 inches of insulating material, and the active compost shall be maintained at a temperature of 55 degrees Celsius (131 degrees Fahrenheit) or higher for a pathogen reduction period of 3 days.

(c) Compost operations and facilities that utilize a windrow composting process or an aerated static pile composting process shall be monitored as follows to ensure that the standards in Subdivision (b) of this section are met:

(1) Each day during the pathogen reduction period, at least one temperature reading shall be taken per every 150 feet of windrow, or fraction thereof, or for every 200 cubic-yards of active compost, or fraction thereof.

(2) Temperature measurements for pathogen reduction shall be measured as follows:

(A) Windrow composting processes and agitated bays shall be monitored twelve (12) to twenty-four (24) inches below the pile surface;

(B) Aerated static pile composting processes shall be monitored twelve (12) to eighteen (18) inches from the point where the insulation cover meets the active compost.

(d) Alternative methods of compliance to meet the pathogen reduction requirements of this section may be approved by the EA if the EA determines that the alternative method will provide equivalent pathogen reduction.

Note: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

Section 17868.3.1. Physical Contamination Limits.

This section shall become operative January 1, 2018.

(a) Compost shall not contain more than 0.5% by dry weight of physical contaminants greater than 4 millimeters; no more than 20% by dry weight of this 0.5% shall be film plastic greater than 4 millimeters. Compost that contains physical contaminants in excess of either one or both of these limits shall be designated for additional processing, disposal or other use as approved by local, state or federal agencies having appropriate jurisdiction. Verification of physical contamination limits shall occur prior to the point where compost is removed from the site or beneficially used on-site. Test results of samples must be received by the operator prior to removing compost from the composting operation or facility where it was produced.

(b) The operator of a compostable material handling operation or facility shall sample every 5,000 cubic-yards of compost produced and determine the percentage of physical contaminants greater than 4 millimeters in the sample using a method that provides accurate results and has been approved by the EA. If the compostable material handling operation or facility produces less than 5,000 cubic-yards of compost in a 12 month period, the operator shall analyze at least one composite sample of compost produced every 12 month period.

(c) If the EA has reason to believe, based on the EA's visual observation or otherwise, that a determination of percent physical contaminants made pursuant to section 17868.3.1(b) is not

accurate, the EA may require an operator of a compostable material handling operation or facility to take a composite sample of compost in the presence of the EA and send the sample to a laboratory at which physical contaminants greater than 4 millimeters shall be collected and weighed to determine the percentage of physical contaminants by dry weight using the following protocol:

(1) Determine the total dry weight of the composite sample as obtained in section 17868.3.1(d);

(2) Separate the physical contaminants greater than 4 millimeters from the composite sample and determine the dry weight of the physical contaminants;

(3) Determine the percentage of physical contaminants by dividing the dry weight of the physical contaminants by the total dry weight of the composite sample.

(d) Any sampling conducted to comply with this section shall require a composite sample. A composite sample shall be representative and random, and may be obtained by taking twelve (12) mixed samples as described below.

(1) The twelve samples shall be of equal volume.

(2) The twelve samples shall be extracted from within the compost pile as follows:

(A) Four samples from one-half the width of the pile, each at a different cross-section;

(B) Four samples from one-fourth the width of the pile, each at a different cross-section; and,

(C) Four samples from one-eighth the width of the pile, each at a different cross-section.

(e) Alternative methods of compliance to meet the requirements of this section may be approved by the EA if the EA determines that the alternative method will ensure the physical contamination limits requirements of this section are met.

Note: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

Section 17868.4. Green Material Processing Requirements. [Repealed]

Section 17868.5. Green Material and Vegetative Food Material Processing Requirements.

Green material, as defined in section 17852(a)(21), and vegetative food material, as defined in section 17852(a)(20)(A), must satisfy the following requirements:

(a) The feedstock shall undergo load checking to ensure that physical contaminants are no greater than 1.0 percent of total weight. Load checking shall include both visual observation of incoming waste loads and load sorting to quantify the percentage of physical contaminants and detect receipt of unacceptable feedstock (e.g. feedstock that does not meet the definition of green material or vegetative food material).

(1) A minimum of ten percent of daily incoming feedstock volume or at least one truck per day, whichever is greater, shall be inspected visually. If a visual load check indicates a physical contamination level greater than 1.0 percent, a representative sample shall be taken, physical contaminants shall be collected and weighed, and the percentage of physical contaminants determined. The load shall be rejected if physical contaminants are greater than 1.0 percent of total weight or if the load contains materials that do not meet the definitions of green material in section 17852(a)(21) or vegetative food material in section 17852(a)(20)(A).

(b) Upon request of the EA, and in the presence of the EA, the operator shall take a representative sample of feedstock, physical contaminants shall be collected and weighed, and the percentage of physical contaminants determined.

(c) Facility personnel shall be adequately trained to perform the activities specified in this section.

(d) Any operation or facility using this feedstock shall maintain records demonstrating compliance with this section.

Note: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.