

APPENDIX E:
ENVIRONMENTAL HEALTH STANDARDS FOR COMPOSTING
OPERATIONS
CCR Title 14, Division 7, Chapter 3.1, Article 7

August 4, 2010

The regulations contained in this document may change at any time, for updates check:
<http://www.calrecycle.ca.gov/Laws/Regulations/Title14/ch31a5.htm#article7>

**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 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 pathogen reduction requirements shall occur at the point where compost is sold and removed from the site, bagged for sale, given away for beneficial use and removed from the site or otherwise beneficially used. 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 green material, food material, or mixed solid waste shall take and analyze one composite sample for every 5,000 cubic-yards of compost produced.
- (2) An operator who composts biosolids shall meet the sampling schedule described in Table 1 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 Health Services, pursuant to the Health and Safety Code.

The regulations contained in this document may change at any time, for updates check:
<http://www.calrecycle.ca.gov/Laws/Regulations/Title14/ch31a5.htm#article7>

(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 for a green material composting operation or facility that ensures the maximum metal concentration requirements of section 17868.2 and the pathogen reduction requirements of section 17868.3 are met.

Section 17868.2. Maximum Metal Concentrations.

(a) Compost products derived from compostable materials that contains any metal in amounts that exceed the maximum acceptable metal concentrations shown in Table 2 shall be designated for disposal, additional processing, or other use as approved by state or federal agencies having appropriate jurisdiction.

Table 2
Maximum Acceptable Metal Concentrations

Constituent	Concentration (mg/kg) on dry weight basis
Arsenic (As)	41
Cadmium (Cd)	39
Chromium (Cr)	1200
Copper (Cu)	1500
Lead (Pb)	300
Mercury (Hg)	17
Nickel (Ni)	420
Selenium (Se)	36
Zinc (Zn)	2800

(b) Alternative methods of compliance to meet the requirements of Subdivision (a) of this section, including but not limited to sampling frequencies, may be approved by the EA for green and food

The regulations contained in this document may change at any time, for updates check:
<http://www.calrecycle.ca.gov/Laws/Regulations/Title14/ch31a5.htm#article7>

materials composting operations and facilities if the EA determines that the alternative method will ensure that the maximum acceptable metal concentrations shown in Table 2 are not exceeded.

Section 17868.3. Pathogen Reduction.

(a) Compost products derived from compostable materials, that contains pathogens in amounts that exceed the maximum acceptable pathogen concentrations described in Subdivision (b) of this section shall be designated for disposal, additional processing, or other use as approved by state or federal agencies having appropriate jurisdiction.

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

(d) Compost operations and facilities 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.

The regulations contained in this document may change at any time, for updates check:
<http://www.calrecycle.ca.gov/Laws/Regulations/Title14/ch31a5.htm#article7>

(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.

Section 17868.5. Green Material Processing Requirements.

In order for a feedstock to be considered green material, as defined in section 17852(a)(21), the following requirements shall be met:

(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 percentage of contaminating materials.

(1) A minimum of one 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 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.

(b) Upon request 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) Any agricultural material handling operation using this material shall ensure the feedstock meets the metal concentration limits specified in Table 2 of section 17868.2.

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

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

Note:

Authority cited:

Sections 40502, 43020, and 43021 of the [Public Resources Code](#).

Reference:

Sections 43020 and 43021 of the [Public Resources Code](#).

The regulations contained in this document may change at any time, for updates check:
<http://www.calrecycle.ca.gov/Laws/Regulations/Title14/ch31a5.htm#article7>