

Measuring Organic Waste in Mixed Waste Organic Collection Stream at Transfer/Processing Facilities and Operations

This guidance summarizes the transfer/processing facility and operation requirements for the measurement of mixed organic materials received and processed. Utilize the infographic to visualize the following measurement requirements.

These measurements and associated calculations are taken after the processing of collected mixed waste organic (MO) streams and prior to sending organics to recovery or disposal for each operating day within the 10 consecutive operating day period.

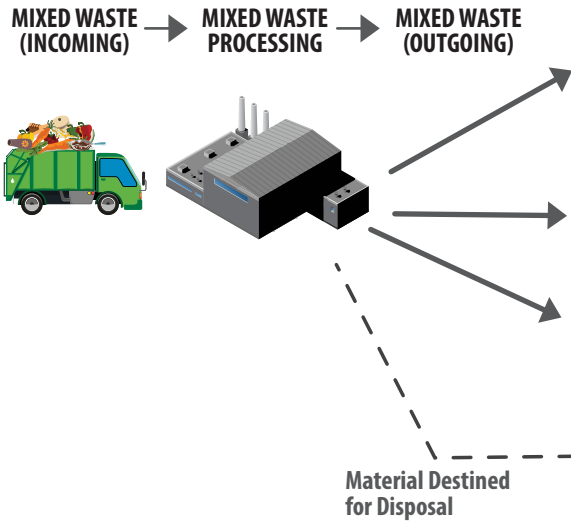
These measurements are used to determine the sum of organic waste recovered and the sum of organic waste in materials sent to disposal from MO streams as described in Title 14 California Code of Regulations (14 CCR), Section 17409.5.1(c). Refer also to 14 CCR Sections 17409.5.2, 17409.5.3, and 17409.5.8.

If there is any inadvertent inconsistency found between this guidance and the regulations, deference must be given to the regulations.

As required in Section 17409.5.6, mixed organic waste and source separated organic waste received at a transfer/processing facilities and operations shall be kept separated from each other and other materials on the site.

Measuring Organics in a Mixed Waste Organics Collection Stream at Transfer/Processing Facilities and Operations

Section 17409.5.2—Measure organic waste recovered from each organic waste type after processing. Measurements are conducted over 10 consecutive operating days.



Step 1 A Determine Total Weight of Organic Material Type.	Step 2 B Collect and Weigh Composite Sample (200 lbs. or more).	Step 3 C Remove Incompatibles and Weigh Organics.	Step 4 $\left(\frac{C \text{ lbs}}{B \text{ lbs}} \right) \times A \text{ tons} = D \text{ tons}$ D Calculate Total Weight of Organic Waste Recovered for that Material Type.	Step 5 Determine Sum of Organic Waste Recovered.
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Repeat the process for each organic waste type recovered

Section 17409.5.3—Measure organic waste sent for disposal after processing. Measurements are conducted over 10 consecutive operating days.

Step 1 E Determine Total Weight of Material Destined for Disposal.	Step 2 F Collect and Weigh Composite Sample (200 lbs. or more).	Step 3 G Remove Incompatibles and Weigh Organics.	Step 4 $\left(\frac{G \text{ lbs}}{F \text{ lbs}} \right) \times E \text{ tons} = H \text{ tons}$ H Calculate Total Tons of Organic Waste Sent to Disposal.	Step 5 Determine Sum of Organic Waste Sent to Disposal.
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Final Step Calculate Percentage of Incompatible Material (Section 17409.5.8).	Record and Report Record the Results and Report the Sum of Organic Waste Recovered and Disposed.
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Measuring Organic Waste Recovered (see [Section 17409.5.2](#))

Measure organic waste recovered from each organic waste type after processing (for example paper, wood, cardboard, food waste) and prior to sending the material to recovery within the 10 consecutive operating day period. Measurements are conducted for each of the four quarters per calendar year as follows:

Step 1: Determine Total Weight for Each Organic Material Type.



- Determine the total weight of each organic waste type that will be sent for recovery.
- Record the weight of the organic waste type = **A₁, A₂, etc.**

Step 2: Collect and Weigh Composite Sample.



- Collect a random selected and representative, composite sample of at least 200 pounds for each organic waste type.
- Record the weight of the sample = **B₁, B₂, etc.**

Step 3: Remove Incompatibles and Weigh Organics.



- For each organic waste type composite sample, remove incompatibles and weigh the organics in the samples.

Incompatible material is human-made inert materials and organic wastes that the receiving end user, facility, operation, or activity is not designed, permitted, or authorized to perform organic waste recovery activities.

Set aside the incompatibles to be measured and recorded. See "Measuring Incompatible Materials Limit in Recovered Organic Waste."

- Record the weight of organics (with incompatibles removed) in the sample = **C₁, C₂, etc.**

Step 4: Calculate Total Weight of Organic Waste Recovered for that Waste Type (D).

Use the weights recorded in the previous steps to calculate the total weight of organic waste for each organic waste type recovered.

Formula:

$$\left(\frac{\text{C lbs.}}{\text{B lbs.}} \right) \times \text{A Tons} = \text{D Tons of Organic Waste Recovered}$$

Repeat steps 1 through 4 for each organic waste type measurement completed over the ten consecutive operating days.

Step 5: Determine Sum of Organic Waste Recovered.

To determine the sum of all organic waste recovered in a reporting period, add the total weights from step 4 for each waste type. This is the sum of organic waste recovered.

Measuring Organic Waste Sent to Disposal (see [Section 17409.5.3](#))

Measure organic waste in material sent for disposal after processing and prior to sending the material to disposal within the 10 consecutive operating day period. Measurements are conducted for each of the four quarters per calendar year as follows:

Step 1: Determine Total Weight of Material Destined for Disposal.



- Determine the total weight of the material that will be sent for disposal for that day.
- Record the weight = **E**

Step 2: Collect and Weigh Composite Sample.



- Collect a random selected and representative, composite sample of at least 200 pounds.
- Record the weight of the sample = **F**

Step 3: Remove the Incompatibles and Weigh Organics.



- Remove any incompatible material and weigh the remaining organics in that sample. In this case, incompatible material will mostly be inorganics, but may include some unpermitted organics such as biomedical waste.
- Record the weight of organics (with incompatibles removed) in the sample = **G**

Step 4: Calculate Total Weight of Organic Waste Sent to Disposal (**H**).

Use the weight recorded in the steps above to calculate the total weight of organic waste in the material sent to disposal for that day.

Formula:

$$\left(\frac{\mathbf{G \text{ lbs.}}}{\mathbf{F \text{ lbs.}}} \right) \times \mathbf{E \text{ Tons}} = \mathbf{H \text{ Tons of Organic Waste Disposed}}$$

Repeat steps 1 through 4 for each measurement completed over the ten consecutive operating days.

Step 5: Determine Sum of Organic Waste Sent to Disposal.

Add the weights from step 4 for each operating day that measurements were conducted during the reporting period.

Measuring Incompatible Materials Limit in Recovered Organic Waste (see [Section 17409.5.8](#))

Measure incompatible material removed for each organic waste type after processing using the data collected from samples used when measuring organics. Incompatible material is human-made inert material and organic waste for which the receiving end user, facility, operation, or activity is not designed, permitted, or authorized to perform organic waste recovery activities. Measurements are conducted for each of the four quartersd per calendar year as follows:

Step 1: Determine Total Weight of Organic Material Type.



- Use the same total weight taken to comply with Section 17409.5.4 for each organic waste type separated after processing.
- Use the total weight recorded to comply with Section 17409.5.4 = **A₁, A₂, etc.**

Step 2: Collect and Weigh Composite Sample.



- Use the same samples taken to comply with Section 17409.5.4 for each organic waste type.
- Use the sample weight recorded for each organic waste type = **B₁, B₂, etc.**

Step 3: Weigh the Incompatibles Removed.



- For each sample, determine the weight of incompatibles in that sample.
- Record the weight of incompatibles in the sample = **I**

Step 4: Calculate Total Weight of Incompatible Material in that Recovered Organic Waste Type (**J**).

Use the weights recorded in the steps above to calculate the total weight of incompatible material removed from the waste stream for that day.

Formula:

$$\left(\frac{I \text{ lbs.}}{B \text{ lbs.}} \right) \times A \text{ tons} = J \text{ Tons of Incompatible Materials in Recovered Organic Waste}$$

Repeat steps 1 through 4 for each organic waste type measurements completed over the ten consecutive operating days.

Step 5: Determine Sum of Incompatible Materials in Recovered Organic Waste.

Add the weights from step 4 for each operating day that measurements were conducted in the reporting period.

Final Step: Calculate Percentage of Incompatible Materials for all Recovered Organic Waste.

Use the sums recorded in the previous step 5 and in step 5 from Section 17409.5.8 (MO), and the combined sum of outgoing material sent for recovery in SSO and MO, to calculate the percent of incompatible materials in all recovered organics.

Formula:

$$\left(\frac{\text{Combined Sums of Incompatibles (SSO+MO)}}{\text{Combined Sums of Outgoing Material Recovered (SSO+MO)}} \right) \times 100 = \text{Percentage of Incompatible Material}$$

The operator shall maintain a record of the incompatible material percentage results and make them available for review by the Enforcement Agency (see [Section 17414.2](#)).

Record and Report Results to CalRecycle [see Sections [17414.2](#) and [17409.5.1\(d\)](#)]

Operators must record the results of each sample conducted pursuant to Sections 17409.5.4, 17409.5.5, and 17409.5.8.

Operators must report to CalRecycle the following:

- The sum of the organic waste recovered from the source separated organic waste collection streams and sent to market or for further processing.
- The sum of the organic waste sent to disposal from the source separated organic waste collection streams.

Measurement Frequency at Transfer/Processor Facilities and Operations

What are the requirements for facilities open fewer than 10 consecutive days (e.g., 2 times a week)?

The requirement is for the operator to perform measurements during 10 consecutive operating days per reporting period, and there are four reporting periods per year (one per quarter). If the facility were open two days a week, then the reporting period would span five weeks. In addition, the regulations allow the operator to propose an alternate sampling frequency to the EA for approval, with concurrence by the Department, if it will be as accurate as the requirements.

What is the measurement frequency for facilities that don't send out material every day?

Facilities and operations should only perform a measurement on the day material is sent out within the 10 consecutive operating day period. The organic ratio of the sample is determined and then applied to the total amount of material sent out for that operating day.

Table 1 and Table 2 (below) illustrate the sampling frequency of a facility that handles a mixed waste organic (MO) stream and a source separated organic waste (SSO) stream. Gray container waste and other incoming waste streams are not included for the purpose of this example.

The facility's outgoing "organic material types" are mixed paper bales, old corrugated cardboard (OCC) bales, green waste, and processed mixed organics. The facility also sends material to landfill from its SSO and MO streams, which must be measured separately.

SSO Streams

- Mixed paper bales are sent out four days within the 10-day period for a total of four measurements.
- OCC bales are sent out on one day within the 10-day period for a total of one measurement.
- Green waste is sent to a compost facility six days within the 10-day period for a total of six measurements.
- Material destined for landfill, comprised of the presort and residual from all the incoming SSO streams, is sent out for six days within the 10-day period for a total of six measurements.

MO Stream

- Processed mixed organics from the MO stream are sent to an anaerobic digester for five days within the 10-day period for a total of five measurements.
- Material destined for landfill, comprised of the presort and residual from the incoming MO stream, is sent to landfill for four days within the 10-day period for a total of four measurements.

Table 1: Example Facility Sampling Schedule for 10-Day Measurement Period with samples taken on outgoing organic material types and material sent for disposal

Outgoing Material Type	Day 1 Mon	Day 2 Tue	Day 3 Wed	Day 4 Thu	Day 5 Fri	Sat	Sun	Day 6 Mon	Day 7 Tue	Day 8 Wed	Day 9 Thu	Day 10 Fri	Total Samples
SSO: Mixed Paper			X		X			X			X		4
SSO: Old Corrugated Cardboard (OCC) to Further Processing									X				1
SSO: Green Waste to Further Processing	X	X		X				X	X	X			6
SSO: Material to Landfill		X	X	X				X			X	X	6
MO: Processed Mixed Organics to Further Processing		X		X				X		X		X	5
MO: Material to Landfill		X		X				X			X		4

Table 2: List of Days that Samples are Taken from Example Facility in Table 1 (ADA accessible)

Outgoing Material Types	Day in Measurement Period that Material Leaves the Facility and Sample is Taken
SSO: Mixed Paper	Days 3,5,6 and 9
SSO: Old Corrugated Cardboard	Day 7
SSO: Green Waste to Compost Facility	Days 1,2, 4, 6, 7 and 8
SSO: Material to Landfill	Days 2, 3, 4, 6, 9 and 10
MO: Processed Mixed Organics to Anaerobic Digester Operation	Days 2, 4, 6, 8 and 10
MO: Material to Landfill	Days 2, 4, 6 and 9