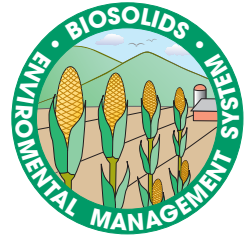


# City of Los Angeles

## Biosolids Fact Sheet: Production

### Anaerobic Digestion



#### What are biosolids?

Biosolids are the nutrient-rich organic byproducts resulting from wastewater treatment. Biosolids are not raw human waste and do not include ash from incinerators, grit and screenings collected during preliminary treatment of wastewater, or hazardous waste. Biosolids can be in several forms including a liquid, a rich moist soil, a dried pellet, or compost.

#### Where do biosolids come from?

Biosolids are created through the transformation of liquid and solid matter in wastewater using natural biological processes. This transformation involves physical, chemical, biological, and heat processes designed to remove water and reduce the levels of odor and bacteria.



#### What process is used to transform the solid material into biosolids?

The City produces biosolids using an anaerobic digestion process whereby solid organic material is broken down in a controlled, oxygen free environment by bacteria naturally occurring in the solid material. The solid matter is processed in a large totally enclosed egg-shaped tank called a digester. The City utilizes sixteen digesters with a total volume of 40-million gallons (2.5-million gallons per digester tank). Bacteria and other microorganisms that live without oxygen thrive in the digesters. About 3.56 million gallons per day of solids are pumped into the digesters. The solids are retained in the digesters for a total of 12 days. During the 12-day process microorganisms in the solids eat and destroy harmful organisms (pathogens). While the solids are in the digesters, steam is used to heat the digesters to 128 degrees Fahrenheit. Heating the digesters to higher (thermophilic) temperatures causes further reduction and destruction of pathogens. That heat and subsequent batch digestion produce a Class A biosolids—containing little or no pathogens. The City's Class A biosolids pathogen level averages less than 7.4 mpn/gram, which is well below the Environmental Protection Agency (EPA) standard of 1000 mpn/gram. Also during the destruction process methane gas is produced and captured. The methane gas is processed further to produce valuable energy that is used for power and steam resources at the treatment facility. Holding the biosolids in the digester for 12 or more days helps destroy the volatile solids and reduces the odors that may be emitted from the final biosolids product. The average destruction rate of volatile solids during the digester process is about 60%, which far exceeds the 38% required by the EPA.



## Are the biosolids tested?

Yes! Throughout the digestion process routine lab analyses are performed. The solids are monitored and tested to ensure that each digester is in a healthy state and that stabilized Class A biosolids are produced. The City has a state-certified laboratory that monitors and reports results per the EPA Part 503 requirements and local ordinance requirements.

The lab's analytical data includes acids, alkalinity, volatile solids, and H<sub>2</sub>S levels in the digester gas stream. Other parameters are monitored daily such as temperature, amount of solids processed, and gas production. These controls are monitored to help the operations staff maintain and adjust the process if necessary to ensure that the final biosolids product can be beneficially used. Random grab samples are taken of the biosolids and analyzed for metals, pathogens, organic compounds, and other constituents to ensure that regulatory compliance limits are met. The results of these analyses are well below their respective regulatory limits. Results are reported to the City's Treatment Plant Operations Manager, the Regulatory Affairs Division, the end-user of the biosolids, and regulatory agencies. A monthly report of the results is provided to internal City staff and the end-user of biosolids. Reports are provided to the regulatory agencies annually and more frequently if requested.

## Are biosolids safe to use after digester processing?

Yes! Transformation of liquid and solid matter into biosolids ensures a product that is safe and suitable for agricultural and landscaping purposes. Treatment processes at the wastewater treatment plant are effective in destroying potentially harmful bacteria and pathogens. Also, the City of Los Angeles Pretreatment Program ensures metal concentrations are limited to very low levels, helping the City produce Exceptional Quality (EQ) biosolids. EQ biosolids meet the Class A pathogen reduction requirements, the most stringent metal limits (pollutant concentrations), and the vector attraction reduction standards specified in the EPA Part 503 Rule. At the concentrations found in biosolids, some of these trace metals act as micronutrients, which are needed to grow healthy crops. Long-term scientific studies over decades have shown that biosolids recycling is both safe and beneficial.



Since 1989, the City of Los Angeles has beneficially used its biosolids in an environmentally sound and safe manner.

## Where can I obtain information about the City's biosolids program?

Information about the biosolids program can be obtained by contacting us at 310-648-5877 or visiting our website at: [www.lacity.org/SAN/biosolidsems](http://www.lacity.org/SAN/biosolidsems). Also, if you would like a tour of the treatment plant digester process please contact us at 310-648-5363.

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