

Mobile Anaerobic Digestion Unit

Anaerobic digestion (AD) or biomethanation is a natural biological process that degrades organic matter into biogas, which is mainly composed of methane. AD also produces liquid and solid digestion by-products that can be easily used as fertilizers or soil amendments.

The NRC mobile AD unit is designed to demonstrate the potential of anaerobic digestion for treating wastewater, sludge and other organic material to engineering firms and their industrial or municipal clients seeking to reduce the organic load in effluents as well as associated costs. Performance data gathered during an on-site trial — i.e. volatile solids (VS) reduction, methane production and processing rates — can subsequently be used to scale up the process.

AD effectively treats liquid and solid wastes from various sources, including:

- › organic waste waters from various industries such as breweries, dairies, paper mills, etc.
- › sludge from municipal wastewater treatment plants;
- › agricultural wastes; and
- › leachate from landfills.

AD is used to:

- › reduce organic matter in effluent as well as odours;
- › reduce greenhouse gas emissions;
- › produce heat or electricity by the combustion of biogas; and
- › produce fertilizers free of pathogens and rich in nutrients.

At a glance

The self-contained mobile unit has two CSTR-type digesters that can be used in processes of varying complexity (e.g. singlephase mesophilic, two-phase mesophilic/thermophilic, etc.). Operation of the unit is fully automated and can be remotely controlled.

During a six-month trial at the La Pinière wastewater treatment plant in Laval, Québec, one of the digesters was fed with the primary sludge from the station. The volatile solids in the effluent was reduced by an average of 60 percent and produced 300 L of biogas per kilogram of COD degraded. On an annual basis, AD at the La Pinière plant has the potential to produce approximately 1.3 million cubic meters of methane, based on the degradation of 3,000 tons of solids.

Services We Offer

The NRC Anaerobic technologies and bioprocess control Group can:

- › perform tests directly on your site with our mobile AD unit;
- › verify, at laboratory or pilot scale, the applicability of AD for effluents with high organic loads;
- › produce reliable engineering data for process scale-up; and

- › test various pre-treatments to enhance the production of methane from organic wastes.

Our Expertise

The Group has over 25 years of experience in AD and collaborates with industrial or municipal partners who are looking for a cost-effective way to assess its potential. A partnership with NRC will increase credibility and visibility with the public; provide access to various research subsidies and to our highly qualified personnel and unique facilities.

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