FACILITY FACT SHEET

Intermodal AD-25-2015-3 Microdigester

Facility Owner	Impact Bioenergy - Crowdfunded Project
Facilty Contact	J. Allen
Facilty Address	Seattle, Washington (Fremont Brewing Company)
Telephone Number	206-250-3242
Digester Size	Intermodal, 8' x 20', 15,000 lbs. loaded weight
Annual Feedstock	Craft Brewery Residuals; Foodwaste, preconsumer and postconsumer
Annual Tons Recycled	25 tons per year with gas storage and electric generator
Site History	Machine no. 3; resides in Fremont-Ballard District in Seattle

Impact Bioenergy launched a successful crowdfund campaign to initiate this machine. The campaign paid for most of the machine, thanks to 335 backers. The campaign was viewed 16,000 times in 68 countries (October, 2015). The media and social media exposure continues to generate interest two years later. Fremont Brewing provided land and residuals (trub, weak wort, and spent yeast) for onsite bioenergy. City of Seattle partnered by entering into a consulting contract to demonstrate alternative organic waste recycling systems for businesses. This project also pulls commercial food waste from restaurants in the surrounding neighborhood - making this a hyperlocal community supported project.

Processing Equipment

Feedstock receiving and preparation tank that doses feedstock into the digester. Digester is heated and manually mixed using a hand operated mud pump with muliple suction and discharge locations. Digester chambers are partitioned to provide both CSTR and FFR digestion. Heating is automatic using a hydronic heating system. Gas is conditioned for moisture and sulfur removal and then stored in an unpressurized (0.15 psi) storage vessel. Gas is measured, pressure-regulated, and backflow prevented. A manifold is provided to a 5 KW generator inside the machine. Surplus gas burner with flame arrester and auto-igniter are integrated into the system. This system has been used to charge electric vehicles and to barbeque food for a Clean Technology Event.

Process and Residence Time

Design is intended to optimize space efficiency and affordability, and to minimize moving parts (complexity and cost). Feedstock is blended, homogenized, and emulsified in a first stage metering tank. Light and heavy contaminants are removable. Dosing cycle and volume are adjustable. Digester hydraulic residence time is 30 days. Digestate discharge is automatic based on displacement method. There are two separate manifolds for gas and liquid. Sampling and condensate valves are provided in a number of locations. Maximum energy output is 15,000 BTU per hour. Maximum digestate production is 130 lbs. per day (16 gallons per day). Some of the digestate is sold a liquid plant food and some is dried using a solar drying bed.