

# FACILITY FACT SHEET

## Intermodal AD-25-2017-1 Microdigester

<b>Facility Owner</b>	Microsoft Corporation
<b>Facility Contact</b>	J. Schilke
<b>Facility Address</b>	Redmond, Washington (Building 125 - Catering Facility)
<b>Telephone Number</b>	
<b>Digester Size</b>	Intermodal, 8' x 40', 40,000 lbs. loaded weight
<b>Annual Feedstock</b>	Commercial Foodwaste, preconsumer and postconsumer
<b>Annual Tons Recycled</b>	40 tons per year with gas storage, and domestic hot water boiler
<b>Site History</b>	Machine no. 5; resides on Microsoft's Main Corporate Campus

Impact Bioenergy sold this machine to Microsoft as a zero waste solution for the cafeteria and catering operations at its campus by recovering the nutrients, energy, water, carbon and organic matter embedded in the food scraps associated with its various dining rooms and catering kitchen. It will enable it to have a zero waste approach by generating renewable energy and commercially valuable biofertilizer without any waste trucking at all. Microsoft has done some piloting of renewables, energy storage, efficiency, fuel cells, and even biomethane power at data centers. This project will likewise change the way food, energy, water, traffic, and carbon are managed.

### Processing Equipment

Feedstock receiving and preparation tank that doses feedstock into the digester. Digester is heated and automatically mixed using multiple 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 200,000 BTU/hr hot water boiler inside the machine. Surplus gas burner with flame arrester and auto-igniter are integrated into the system. The system will convert 1,500 lbs. of food waste weekly. It is designed to generate a peak renewable energy output of 0.56 million BTU per day (5.6 therms per day). The system includes energy storage (0.45 million BTU). It will also generate 164 gallons per week of probiotic plant food and soil booster which can be used on campus to fertigate the landscape. It can also be returned to the local farms that supply the catering operation so they can reduce their dependency on petro-chemical based fertilizers and pesticides.

### Process and Residence Time

Design includes a high-capacity food waste grinding system. Feedstock is blended, homogenized, and emulsified in a first stage metering tank. 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 560,000 BTU per day. Maximum digestate production is 164 gallons per week.

