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Micro Anaerobic Digestion (Micro AD)

Food waste generated either during the preparation of food or during delivery on an institutional basis may be advantageously pre-treated at the point of generation to liberate heat and power and reduce the volumes requiring transport to centralised processing and recycling facilities.

Such embedded micro technologies based on a packaged Anaerobic Digestion process (AD) are a new market concept but can be compared to the on-site paper compaction techniques introduced to the waste paper and packaging segment of the waste management industry.

Given the sometimes transitory nature of institutional organisations, a packaged design employing sustainable operation technologies that can be relocated is essential.

Energy products are released for direct reuse by the waste generating organisation and the concept requires minimal civil engineering intervention.

As the AD operation is an integrated part of the waste management chain it is not essential to totally process the waste to such standards as PAS 110. Partly treated waste can be transported for completion at secondary waste processing operations.

Vessels and equipment are installed in ISO container-dimensioned units (45ft and 40ft). The preferred methods of waste delivery are by Eurobin (1100 litre) for solid materials and by pumped slurry for liquid materials.

Systems will be automated such that operator attendance is only required for sorting and loading waste, and collecting dewatered processed waste.

The potential for environmental and financial benefits from anaerobic digestion are significant; the UK government has identified this and fully supports the technology.

Larger scale schemes being fed by poorly sorted household waste streams have experienced difficulty in the past. Smaller schemes controlled by the waste producer are the way forward and are seen to have the greatest chance of success. The waste producer then takes control of its own environmental issues and that of its customers, and both parties can take mutual advantage of the environmental and financial benefits that can be gained.

Anaerobic digestion is an efficient producer of renewable energy, and a Micro AD scheme could produce the following for example

Energy assessment

Feedstock	8,500	Kg/day
Biogas yield	230	m ³ /tonne
Daily biogas	1,955	m ³
Energy Value	38	MJ/M ³
Total energy	74,290	MJ /day
Continuous energy	860	kW
Energy as electricity	275	kW

Typical Layout for a Micro AD plant

Unitised Anaerobic Digester. Throughput 5-10 tpd AD module.

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