

ADVETECxo™

The Advetec XO™, a development of the company's successful Bio-Thermic Digester (BTD) technology is an in-vessel solution engineered to rapidly digest organic waste. As well as being optimised for fast throughput it also has a smaller footprint than other processes, an important factor where site space is limited. More importantly it is able to handle a wide spectrum of organic material including normally indigestible hard carbons, cellulose and lignin-based materials. In addition to food waste therefore, it can also handle organics from abattoirs, sewage sludge, as well as waste from fat traps, septic tanks, filter cakes, gully cleaning and trade effluent, and of course green waste.

At the heart of the process is a blend of extremophile bacteria and specially-developed nutrients on which the bacteria thrive at high temperatures, enabling them to rapidly digest all of the organic material. This innovative thermal process has proved to be far more efficient than AD alone. The latest Advetec XO™ has been designed to minimise the need for further processing whilst enabling food processing companies and the like to discharge clean water to sewers within Integrated Pollution Prevention and Control (IPPC) regulations.

The advantages of such a high temperature aerobic digestion process, is that it is extremely rapid by comparison to conventional in-vessel composting. Some equipment has a heat and moisture recovery system which improves biological efficiency and reduces running costs. This takes heat generated by the exothermic process and re-uses it to sustain the high temperature environment required for the bacteria. This can cut energy running costs by as much as 60%.

The Advetec XO™ is also impervious to contamination and some can digest all the organic matter present in mixed waste in just 72 hours. Consequently, operating costs drop after the initial start-up procedures. Water from steam is condensed out and filtered to deliver a similar quality to tap water if required and all moisture extraction and odour control are built into the system as standard.

The Advetec XO™ will safely convert 20 tonnes of organic food waste into distilled water and a dry powdery by-product. The on-site process can deal with bone, feather, blood and some animal by-products from every stage of dairy, slaughterhouse and food production process, yet only takes between 48 to 72 hours.



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Of course not all waste streams are the same and continuing research blending different strains of extremophile bacteria and the nutrients that encourages them to thrive, is helping to answer the problem of dealing with more complex organic waste streams.

Operating environments are different too and careful monitoring and adjustments of the internal process including temperature, nutrients, oxygen and waste gases, is key to optimising throughput and maintaining the health and activity of the bacteria. Developments here in terms of remote telemetry and the control software enables the delivery of completely managed services for customers, operating a machine 24/7 anywhere in the world from UK facilities.

A Advetec XO™ needs to be part of a complete advanced engineering system consisting of hoppers, shredders, augers, storage tanks and piping, designed and tailored to match each customer's differing needs to increase throughput and ensure an optimal and robust processing environment.

With the growing requirement to limit or end the disposal of organic waste to landfill and ever stringent environmental consents for the discharge of wastewater to sewers, the ability to fully process waste water and solid waste from production processes on site, effectively plumbed in to the manufacturing process, is becoming increasingly important. Conventional systems only provide part of the solution. Extremophile bacteria and bio-thermic digesters can help complete the waste management cycle. For smaller sites with limited space they might offer the only solution.



Applications

Utility companies, Food manufacturing, Abattoirs, Agriculture, Colleges and schools, Councils, municipalities and local authorities, Landfill, composting and waste management, Hotels, conference and convention centres.

Advetec XO Benefits

Recycles water and heat, Reduces carbon footprint, Reduces landfill up to 95%, Self-contained unit.

Types of waste

Sewage sludge, mixed solids waste (MSW), Food processing waste and Animal by products.

Advetec XO Process

- The whole process takes between 48-72 hours to complete.
- Organisms living at higher temperature work more quickly.
They reduce hard Carbon particulates and produce sterilised material, pathogenic bacteria are killed during the process and condensed water is reclaimed.
- Regulated air supply promotes optimum oxygenation for the aerobic organisms.
- Heat generated by extremophilic process reused to sustain environment.
- Filter systems eliminate all noxious odours.
- Nutrient augmentation process accelerates digestion.
- Organic processing is done at source, no transport/handling costs.
- System records all data to support compliance accreditation.
- The digestate can be used to fuel bio-mass boilers as it has a calorific value two thirds that of coal or can be sold as a soil conditioner subject to relevant certification.
- The process can be remotely monitored via the Internet for full traceability.



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