Eco-Sphere

Company Profile

Eco-Sphere Worldwide is a Bridgend-based company with interests and activities in the environmental, educational and socio-economic sectors. Eco-Sphere are particularly interested in reducing waste to landfill through a variety of approaches and in the valorisation of different waste streams. Through close collaboration with BEACON, Eco-Sphere aims to deliver significant environmental, social and economic benefits to the Welsh economy by securing Intellectual Property (IP) and through the development of new products and processes.

Collaboration with BEACON

Eco-Sphere has been working with manufacturers of food waste processing machines in Wales, together with a UK importer of similar equipment, and is interested in appraising this method of handling food waste at both domestic and industrial catering scale. Eco-Sphere would like to establish this method of on-site handling/management as the preferred option for food waste to provide an environmentally sound and microbiologically safe alternative to the existing domestic and commercial bin system. Parent company Eco-Sphere Intelligent Technologies will act as the main distributor of the food waste machines.

In the UK there are currently two standard methods for treating food waste, namely aerobic composting (after pasteurisation to neutralise pathogens), and Anaerobic Digestion (AD). However, the Eco-BioDry machines are capable of providing a point-of-production system to process food waste into a dehydrated flowable solid crumb and separate sterile condensate water with very low dissolved solids. BEACON worked with Eco-Sphere to trial a catering-scale food waste processing machine and valorise its output. The initial project aimed to assess whether the nutrient-rich dry output could be used as a compost or fertiliser. In-house and external testing (PAS100) demonstrated that while it has good properties as a fertiliser (diluted), further processing (composting) would be needed for it to be used as a plant growth medium.

Food waste dried in the Eco-BioDry machine

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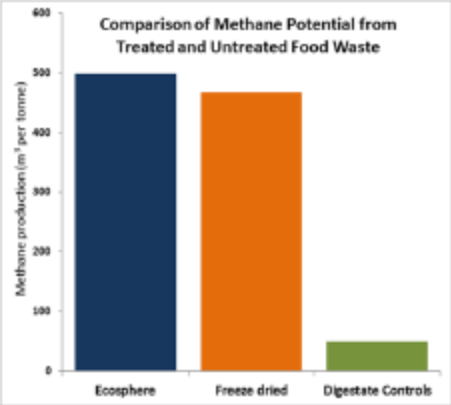

A second BEACON project aimed to determine whether the dehydration process adversely affected the waste with regard to its use as a feed into AD systems. When samples of untreated and Eco-Sphere processed food waste were compared, the Eco-Sphere processed food waste produced similar levels of methane (see figure left). The results demonstrate that the Eco-Sphere system could be incorporated as a key part of the current strategy for taking food waste to AD. The process has the potential to significantly reduce haulage and handling charges for larger producers and provide AD plant operators with stabilised feedstock that could be used to provide buffer variations in feedstock supply and methane production.

Eco-Sphere are also looking to develop the first fully compostable disposable nappy and hygiene products using material grown and sourced in Wales. The company already produces a disposable nappy made from bamboo, but a further collaborative project was developed to examine the feasibility of using Miscanthus developed at IBERS, Aberystwyth University, as a more sustainable alternative to bamboo. BEACON scientists tested several varieties of Miscanthus, and found that a number of these produced fibres which would provide a suitable and sustainable alternative to bamboo for the manufacture of these hygiene products.

"Without the support and expertise afforded to my company and myself by the specialist BEACON team and my own determination to secure compliance in my endeavours to secure a front-end on-site food waste management process that supports AD in the field of energy2waste and energy2resource projects, crucial credibility would have been lacking on all fronts."

Jenny Lewis
Director

eco-sphere
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For further information:
ww.eco-sphereworldwide.co.uk