



Case Study

Food Waste / AD Bags: Earth Power

Background

Our Client

EarthPower Technologies is Australia's first regional food waste-to-energy facility located in Sydney's west. They take organic waste material from the industrial, commercial and residential sectors and converts the food waste to energy and fertilizer through the Anaerobic Digestion Process.

Hydropol™ AD Food Waste Bag

Hot water soluble (HWS) Hydropol™ has been specifically formulated for blown film and is an ideal polymer for the manufacture of food waste (AD) bags and bin liners.

DB Packaging supplied EarthPower with Hot Water Soluble (HWS) bags that breakdown at 60°C.

Process and Results

- The Hydropol bags were filled with food waste plus a Hydropol bag was filled with 12 empty Hydropol bags. They were transferred to the Hydro-pulper via a pulper screw conveyor
- The food waste and Hydropol Bags were pulped with warm water at approximately 45 degrees for 10 minutes
- The contents of the pulper was washed and discharged.
- During examination traditional plastics were still evident. There were no remains of Hydropol – it had completely dissolved.

Bag Benefits

- Suitable for mesophilic and thermophilic systems
- No de-bagging required:
 - Hydropol bags break down fully in the AD system
 - They contribute to the gas yield
 - Waste plastic removal costs reduced
- Reduced maintenance costs, doesn't clog filters or conveyors
- When fully digested, will not form microplastics in the digestate and will meet the requirements of PAS 110
- Strength
 - Excellent strength, puncture resistance and durability
 - Can hold wet food without disintegrating
 - No need to double-bag
 - No need to clean bins as there's little/no mess
- Clarity
 - Ability to see contents clearly
 - Excellent transparency with over 90% transmission rate when tested to ASTM D1003 verified to ISO 14782.

Environmental Benefits

- Anaerobic digestion has lower costs compared to other forms of food waste disposal processes.
- Viable alternative to traditional landfill, and subsequent reduction in greenhouse gas emissions.
- Generates green energy whilst producing nutrient-rich fertilizer and saving on waste disposal costs.

Technical Summary*

*please see Hydropol™ 30124 Technical Data sheet for complete details

Barrier Properties – HWS Hydropol™ has high resistance to animal, mineral and vegetable oils, aliphatic and aromatic hydrocarbons, ethers, esters and ketones. They also offer excellent barriers to Oxygen.

Non-Toxic – HWS Hydropol™ is non-toxic and all raw materials are listed as approved as direct food additives and food contact by EU and US regulatory listings.

Biodegradable – HWS Hydropol™ is inherently biodegradable. Biodegradation has been observed by at least 20 different genera of bacteria and several yeasts and moulds which occur in activated sludge, compost, facultative ponds, landfills, anaerobic digesters and septic systems and in natural soil and aquatic environments. Sturm (aquatic) biodegradation tests show that the formulations degrade in the presence of activated sewage sludge at a similar rate to cellulose. Testing for Compostability and Anaerobic Digestion is ongoing.

Marine-Safe – HWS Hydropol™ has shown no ecotoxicological effect in Marine environments according to ASTM D6691.

Anti-Static – Due to their high hydroxyl group content and hygroscopicity, Hydropol™ compounds are inherently static dissipative, similar to cellophane, and cause little frictional static charging. Surface resistivities are in the range of 105–106 ohms/m².



Global
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