Composting Made Simple

with Ag-Bag Environmental's EcoPOD Technology

As the world's population grows–along with the volume of commercial products we use–so has the total amount of solid waste generated. Attention to waste management problems continue as new regulations result in fewer landfills at greater cost. Decision-makers are focusing their attention on recycling and composting as an economic and environmental solution to landfilling.

Waste composition studies show that on average 60-70% of the typical waste stream is organic materials and of that, nearly 20% is yard trimmings. This has lead many states to ban yard waste from landfills. Composting is a logical choice as it reduces material volume through natural biological action and produces a product that enhances soil structure and benefits new growth.

The influx of composting projects has ushered in a new set of problems, including odor complaints, weather-related control problems, leachate control, blowing debris, and high operating costs. Organic waste is often composted by piling material in windrows and mechanically turning the piles to achieve aerobic decomposition. However, the process control becomes difficult and labor costs are increasingly higher.

Ag-Bag Environmental offers a ***unique*** and patented waste management solution that makes composting simple via a low cost in-vessel system using forced aeration.

Proven technology is used for filling the elongated flexible plastic bag called an EcoPOD® (Preferred Organic Digester) with positive aeration and control. The equipment is derived from 20 years of successful agricultural feed storage usage. The controlled compaction is used for all types of materials, densities, moistures, and particle sizes. Each EcoPOD® is adjusted with its own valving and aeration controls to individualize the composting process, yet use a minimal amount of labor and supervision. Our system is reliable and efficient with capacities to match any requirement. Ag-Bag Environmental offers a patented technology with a high degree of process control.

San Francisco exceeds a 50% diversion of organics from the wastestream

Meet the challenge of the increasing demand for organics recycling by composting organics including food waste, yard debris, soiled paper, and cardboard in the Ag-Bag EcoPOD® system. The EcoPOD®s provide the highest degree of process control while containing odors and leachate. Food Waste recycling reduces material going to the landfill and achieves the National Recycling goal of over 35%.

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AG-BAG® environmental

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Odor Control

The aerobic process with the Eco-POD® prevents the production of objectionable odors while maintaining aerobic activity during the composting cycle. With the sealed Eco-POD®, odor containment is also assured.

Leachate Control

Starting with 40-50% moisture, condensation is created as the feedstock heats, eliminates costly re-watering, while controlling liquid in the sealed EcoPOD.®

Blowing Litter

With all material contained inside the EcoPOD,® there is no exposure to weather and the problems of wind blown litter and pathogens are eliminated.

Vector Control

Complete containment of material in the EcoPOD® eliminates health problems related to the exposed food and habitat sources found with other methods of composting.

Reduced Site Area

Composting in an EcoPOD®s significantly reduces the land area requirements by one-third. The ease in siting closer to urban areas reduces transportation costs and increases profitability.

Reduced Cycle Time

The Ag-Bag Environmental system provides a cycle time of as little as 8 weeks. Curing adds another 30 to 60 days. Annually, three to five composting cycles are easily obtained

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Site Considerations

Site locations closer to urban areas, and the waste stream, is simple with Ag-Bag Environmental. This cuts hauling costs and ensures a better profit picture.

Improvements are as simple as a slope of 1-3 degrees with a gravel or hard-packed surface. Asphalt or concrete are not necessary, but will improve efficiencies. With a homogenous mix and blending of materials on an all-weather surface, a better product goes into the EcoPOD® and results in a higher quality end-product

The area needed to compost is determined by the volume of waste material. An EcoPOD® requires one-third the space needed for a windrow. Eleven 10' EcoPOD®s fit on one acre and, based on our recommended density of material, equals 5,500 yards. The cycle can be completed in 60 to 90 days and the same area reused for the next cycle. With the potential of 3-5 cycles per year, as much as 22,000 yards per acre per year can be expected.

Electric power (110v) needs to be available to run the blower systems. This can be sized and engineered at the time of site approval. Also, water should be available to the compost site as the material mix should be 40-50% moisture going into the EcoPOD® for optimal results.

Feed Stock

Only organic materials will compost. Some examples of materials are listed below. Ag-Bag Environmental is available to help you balance the mix of your feed stocks for optimal results.

ANIMAL MORTALITIES
BIOSOLIDS
COW MANURE
FISH WASTE
FOOD WASTE
GRASS CLIPPINGS
HORSE MANURE
LEAVES
MSW
MIXED ORGANICS
PAPER MILL SLUDGE
PAPER WASTE
POULTRY MANURE
SAWDUST
CONTAMINATED PAPER
STRAW
CONSTRUCTION DEBRIS
WAXED CARDBOARD
WOOD PALLETS
YARD TRIM/BRUSH

Wood Waste

Food Waste

Fish Waste

Poultry Waste

Feed Stock Preparation

Sizing – Materials need processing to 4" minus in size. Brush trimmings, shrubs, lumber, etc. show best results after being processed through a grinder or shredder.

Mixing – A composite mix of material needs to be balanced for proper carbon to nitrogen (C:N) ratio. This means a mix of greens (nitrogen sources) to browns (carbon sources). The best ratio is between 20 to 40:1, with 30:1 being ideal. This process is analogous to baking a cake.

Moisture – Some materials require additional water to bring a uniform moisture to between 45 and 50% throughout the compost mass.

Yard Waste

MSW

Equipment

Model CT-5 – An economical system that comfortably processes up to 25,000 tons of material annually. Using a 5' diameter by 200' length Eco-POD®, this system has a 3 yard hopper and can process approx. 76 tons of material in about 1-2 hours. This unit is small enough to tow down the road from site to site yet large enough to fit an industrial application. Powered with a 13 hp Honda engine (a diesel engine option is available) and features a remote control unit to operate the hydraulics. This system can be used by a single operator and has a fill rate of 1+ tons per minute.

Model CG-610 – This compost system uses a cross-conveyor system requiring a side delivery unit to fill the Eco-POD®. Designed for operations using a mixer wagon or truck to blend and feed the materials, the CG-610 has a fill rate of 1-3 tons per minute. Using the 10' diameter x 200' length EcoPOD®, this system requires a 70-plus horsepower tractor with 540 PTO to power it.

Model CT-10 – Designed for operators wanting the ability to easily process a high volume contaminated waste stream, the CT-10 fits the bill. This system handles up to 150,000+ tons of material annually. Using a 10' diameter by 200' length EcoPOD® with a 7 yard hopper, this system is powered with an 55 hp John Deere diesel engine and features a remote control unit to operate the hydraulics. This system can be used by a single operator and has a fill rate of 3+ tons per minute.

Model CM-710 – This system uses a feed table conveyor that can be loaded with a front-end loader, rear unload or dump-trucks. Also using the 10' diameter x 200' length Eco-POD®, operations processing large quantities annually can best use this system. It is self-powered with a 120hp John Deere® engine and has wheel drive to move from EcoPOD® to EcoPOD®. The CM-710 has a fill rate of 3+ tons per minute.

Supplies

EcoPOD - The EcoPOD® is manufactured from LDPE plastic and is completely recyclable. It is sold as a complete unit with all the parts necessary to finish an EcoPOD® of compost. The EcoPOD® comes in either 5', 10' or 12' diameters and 200' length. When full, it is sealed on each end with a special sealing strip that prevents leachate loss to the ground surface. Dark green in color, the EcoPOD® blends with surroundings, and attracts solar heat. Depending on the size used, an EcoPOD® will hold between 250-1000 yards of preground materials that are mixed or blended with the right amount of moisture. Included in the complete EcoPOD® is the aeration piping with all fittings, seal strip sealing equipment with tools, controllable vents, temperature probes and starter inoculant.

The Ag-Bag Environmental composting system provides excellent control of moisture content, oxygen supply, and temperature. Free air space is controlled during the filling process by density compaction controls on the compaction machine. The oxygen supply is replenished by forced aeration and eliminates the labor intensive need to turn. Temperature monitors indicate when the airflow needs adjusting to maintain proper temperatures. Moisture is adjusted at time of filling or added to the total mixture upon blending. We maintain consistent moisture and temperature throughout the process while other systems do not. The compost matrix is sufficient in size to maintain heat, even in cold climates. Considered an in-vessel system, the Ag-Bag Enviromental composting system is easily permitted.

Harvest

After 8-12 weeks of composting residence time, the compost cycle is completed and it is time to harvest the EcoPOD®. The EcoPOD® is opened and the material static piled for 30–60 days to cure or mature. This is a natural biological process as mature compost adds nitrogen back into the soil. Immature compost has the potential to withdraw nitrogen from the soil.

There is no need to cover the curing piles as the material is stable from the composting residence time.

Once the compost is mature it should be screened. Screening creates a more uniform end product and any overs can be reintroduced into the next EcoPOD®.

Commonly Asked Questions

"How can you compost without turning?"

"Turning is used as a method of introducing oxygen to the materials because oxygen is required to create the heat necessary to obtain mandated temperature. The Ag-Bag Environmental system uses forced aeration and eliminates the labor-intensive turning."

"How can you control temperatures inside the EcoPOD®?"

"With our patented aeration system, temperature control becomes simple and we eliminate weather factors. There are vent valves installed at twelve locations on the EcoPOD® . If temperature or oxygen levels inside the EcoPOD® go higher than optimal, the air flow is adjusted, causing the oxygen levels to drop and the compost to cool. If the temperatures become lower than optimal, the air flow is increased causing the oxygen levels to increase and the compost will heat up. The temperatures are easy to control, and are not effected by ambient temperature."

"What limitations are there to the materials that can go into the EcoPOD®?"

"All organic materials can be composted in an EcoPOD®. The quality of the final compost is determined by the feed stock and balance of the mix of materials that go into the EcoPOD®. Contamination by inorganic materials will effect the final compost quality, but any material sized to our specification can be put into the EcoPOD®."

"What kind of difficulties are there to permitting the Ag-Bag Environmental System?"

"Because the EcoPOD® completely contains the waste materials, controlling odors and leachate, the Ag-Bag Environmental composting system is viewed very favorably and has been permitted under some of the most stringent requirements. Additionally, it is possible to site near urban areas to reduce transportation costs with the patented in-vessel system."