

Anaerobic Digestion Effluent

BIOREFINING PROCESS SOURCE

Anaerobic digestion

DESCRIPTION

The mixture of solids and liquids that leaves an anaerobic digester is relatively homogeneous. The strong odor of many anaerobic digester feedstocks is also largely dissipated by the end of the digestion process. The nitrogen, potassium and phosphorus that make manures a desirable fertilizer are still present after digestion. Solids comprise 20-30 percent of the effluent. Soil application can include or not include the solids; by removing the solids, the overall phosphorus content drops, allowing greater application rates. The solids can be used as bedding, composted and sold as premium compost, or used for projects such as mine reclamation and wetland restoration.¹ While most discussion of anaerobic digestion effluent is centered on livestock manures, it is important to realize that the use of different feedstocks significantly affects what can be done with the byproducts.

REPRESENTATIVE BIOBASED PRODUCT OPPORTUNITIES

BIOBASED PRODUCT	CLASSIFICATIONS	MARKET OPPORTUNITY	MARKET SIZE
Bedding	Fiber residue	In the case of anaerobic digesters on dairy farms, the most economical option is often to re-use the solids on-site as animal bedding. The market price for such bedding is \$10/cu. yd. ²	Medium
Fertilizer	Manure constituents; valuable nutrients: N, P ₂ O ₅ , K ₂ O	The liquid portion of anaerobic digester effluent from livestock can be sold as fertilizer. Assuming \$0.22, \$0.22, and \$0.14 price per pound for N, P ₂ O ₅ and K ₂ O, respectively, ³ this sells for roughly \$4/ton.	Large

REFERENCES

¹ Converse, James. 2003. Anaerobic Digestion Fiber Residual Uses. University of Wisconsin, Madison, WI. <http://matcmadison.edu/matc/about/initiatives/ceret/symposiumdocuments/ConverseBiogasMar03.pdf> (16 April 2004)

² Oregon Department of Energy, Anaerobic Digester at Craven Farms. 2003. Oregon Department of Energy. Salem, OR. <http://www.energy.state.or.us/biomass/digester/craven.htm> (16 April 2004)

³ Reetz, H. F. Jr. and Schnitkey, G. D. 2002. Economics of Nutrient Systems and Sources. Better Crops, 86(2):10-13.

Wisconsin Agricultural Statistics. 2003. Wisconsin Agricultural Statistics Service. <http://www.nass.usda.gov/wi/rlsetoc.htm> (16 April, 2004)

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