

Biogas odor

Introduction

. □ Biogas , “Anaerobic digestion is a series of biological processes in which microorganisms break down biodegradable material in the absence of oxygen. (<2.0ppm”)The products of this process are biogas, liquid digestate, and solid digestate. A similar process occurs naturally in marshes and wetlands, producing swamp gas. The organic fraction in landfills also breaks down primarily anaerobically, producing landfill gas. Biogas, swamp gas, and landfill gas all contain methane, carbon dioxide, and hydrogen sulfide, but the percentages vary among them.



□ Anaerobic digestion (AD) systems are designed to capture the biogas produced from this breakdown and produce energy. AD’s place on EPA’s Waste Management Hierarchy depends upon the final disposition of the digestate. If the digestate is beneficially reused (e.g. composting, land application), AD would reside in the “Recycling/Composting” category. If the digestate is ultimately landfilled however, AD would reside in the “Energy Recovery” category.

How does it work?

□ It's a **Biological Process**, and there are 4 stages: Hydrolysis, Acidogenesis, Acetogenesis, Methanogenesis.

□ **Hydrolysis**- the first step in the conversion of organic material to biogas. In this stage, certain bacteria break down organic polymers like carbohydrates into simple sugars so that the next group of bacteria can further process the material.

□ **Acidogenesis**- the second step in the conversion of organic material to biogas. In this stage, certain bacteria called acidogenic bacteria convert the simple sugars and amino acids into carbon dioxide, hydrogen, ammonia, and organic acids.

□ **Acetogenesis**- the third step in the conversion of organic materials to biogas. In this stage, certain bacteria called acetogenic bacteria convert the organic acids into acetic acid, carbon dioxide, and hydrogen.

Methanogenesis- the final step in the conversion of organic materials to biogas. In this stage, certain single-celled organisms called methanogens convert the intermediate products produced in the preceding stages into biogas (primarily methane and carbon dioxide). The solid and liquid leftover from this process, digestate, consists of material that the microbes cannot use as well as dead bacteria.

Various kinds of Feedstocks can be used in anaerobic digestion:

- Manure Municipal wastewater Industrial wastewater Municipal solid waste (MSW) Fats, oils, and greases Food Scraps Sludges

Microbial Processes

- The conversion of any feedstock into biogas is performed by bacteria. Anaerobic bacteria, known as anaerobes, like all living organisms require a source of oxygen to survive. In anaerobic conditions the source of this oxygen is primarily the organic matter in the digester and the action of these anaerobes forms intermediate products which are ultimately converted into methane by specialized bacteria known as methanogens.

Solution

Valens Company is a pioneer in the field of treating **Odor biogas**. In implementing its solutions, it relies on advanced, promising, fast, and well-established technology. It does not limit itself to mask odor but it completely eliminates it from its source. It builds in its solutions on emphasizing data, the human mind, the modernity of the machine, and alternatives to materials, and through the integration of processes, magnificent results and brilliant outputs are achieved.

Benefits

- Reduction in CO₂ emissions
- Increase in methane production
- Sludge Reduction & Quality
- Corrosion of plant equipment is prevented due to removal of hydrogen sulphides
- Rapid reduction in VOC's and odor

Contact

VALENS



VALENS

www.uvalens.com