



IMPCO Technologies

Biogas Frequently Asked Questions

What Is Biogas?

Biogas is organic gas used as fuel: a mixture of methane, carbon dioxide and other trace gasses from landfills and waste digesters. Biogas is used to produce power from landfill and solid waste sites all over the world. When the biogas is purified, it is known as biomethane and is a form of renewable natural gas.

Biogas should not be confused with the term bi-fuel, which means that a vehicle can switch between running on gasoline and an alternative fuel such as natural gas or propane.

How Is Biogas Produced?

Biogas is produced from organic materials by various methods. Anaerobic digestion of waste materials from landfills and solid waste plants are most common. However, gasification and distillation from processed organic materials is emerging as an effective method of producing biogas. After biogas is produced and extracted, it must be upgraded for pipeline distribution or use as a vehicle fuel. This means increasing the proportion of methane and decreasing the proportion of carbon dioxide and trace compounds.

The International Energy Agency estimates that in 2005, 185 anaerobic digestion plants had the capacity to process 5 million metric tons of municipal solid and organic industrial waste to generate 600 megawatts of electricity. The potential for biogas production is much larger. Natural Gas Vehicles for America cites a 1998 study estimating that the biogas potential from landfills, animal waste and sewage is equivalent to six percent of U.S. natural gas consumption or 10 billion gasoline gallon equivalents of transportation fuel.

What Are The Benefits Of Biogas?

Since biogas comes from organic material, it is considered Carbon Neutral, meaning that the carbon dioxide as a result of combustion with biogas does not increase the amount of atmospheric carbon dioxide. This is due to the nature of organic materials absorbing carbon dioxide from the environment in the first place. The benefits of biogas are similar to the benefits of natural gas: increasing energy security, paving the way for fuel cell vehicles and improving public health and the environment through carbon neutrality meaning that it adds no greenhouse gasses to the environment. It's also a domestic, renewable resource and helps to produce jobs, benefiting the overall economy. Consumption of biogas offsets the use of non-renewable resources such as coal, oil and fossil fuel-derived natural gas with corresponding emission reduction and energy security benefits.

Is Biogas Used As An Alternative Fuel Today?

According to a 2007 report from the Alternative Fuels and Advanced Vehicles Data Center (AFDC), an estimated 12,000 vehicles are fueled with upgraded biogas worldwide, with 70,000 biogas-fueled vehicles predicted by 2010. Europe has most of these vehicles. Sweden alone reports that more than half of the gas used in its 11,500 natural gas vehicles is biogas.

In the United States, biogas vehicle activities have been on a smaller scale. Examples include a landfill in Whittier, California that fuels vehicles with compressed natural gas derived from its landfill and an Orange County, California landfill that produces liquefied natural gas for use in transit buses. Information provided by AFDC.