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Landfill Gas Cleanup System -- Test Results

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Abstract

This project developed and tested a novel cleanup system capable of removing halogen and sulfur contaminants in landfill gas so that it can be consumed in a molten carbonate fuel cell. Landfill gas is an underutilized fuel resource, and, when vented to the atmosphere, a pollutant. A low cost cleanup system would enhance the attractiveness of using landfill gas as a fuel to make electricity. The cleanup system developed in this project demonstrated the capability of treating and removing a large number of organic halogen and sulfur compounds to the parts per billion level. The process is based on the hydrogenation of the contaminants followed by their selective absorption. A pilot cleanup system was built and tested at the Anoka county landfill in Minnesota. The test results will be used to design and estimate the cost of a cleanup system for a 3 MW molten carbonate fuel cell plant.