



## Landfill Gas Measurement



Landfill Gas is the by-product generated when waste is deposited into landfills. The purpose of the landfill is to dispose of waste materials by a process of burial and anaerobic decomposition. The waste material is deposited into the landfill, compacted by bulldozers, and then covered with a layer of soil. The landfill is a structure built on top of the ground where waste is isolated from the surrounding groundwater, rain, and the air by a liner on the top and bottom and then a layer of soil on top.

To better understand the need for monitoring flow, a brief summary of the biological process should be explained. Bacteria in the landfill break down the trash when there is no oxygen present, as the design of the landfill is airtight. This is referred to as anaerobic decomposition process. The byproduct of this decomposition process is Landfill Gas. Landfill Gas is approximately 50 – 60% Methane gas, with the remaining balance mostly Carbon Dioxide, and trace amounts of other gases.

Federal Regulatory agencies require each landfill site to collect the landfill gas produced on site, and where it is not being used for energy production, it must be flared to prevent its release. Furthermore, laws mandate that all used and flared emissions be monitored, and the flow rate be recorded.

The Landfill Gas is extracted through a collection of embedded pipes connected to a header pipe and a blower skid. The Methane gas is then extracted and is either sent to a power generation station, gas plant, or it is sent to a flare to be oxidized.

Thermal Instrument Company (TIC) Model # 62-9 thermal mass flow insertion probe (pictured below) is the appropriate instrument for monitoring the instantaneous mass flow rate of the Landfill Gas. The thermal mass insertion probe can be inserted into the piping after the blower, or any pipeline to measure the amount of gas that has been collected from the process. Thermal Mass



technology has proven to be an accurate, reliable, and repeatable measurement technique.

Thermal Mass flow measurement technology offers several benefits to Landfill operators, such as:

- Calibrated to specific gas mixes
- Provides Wide Turndown range for flow rates (100:1)
- Negligible Pressure Drop
- Repeatability
- Temperature and Pressure Compensated
- No Moving Parts

Thermal Instrument Company goes a step further and offers additional benefits with our uniquely designed thermal mass flow insertion probe:

- Factory Calibrated to exact gas composition and line size
- Integral and Remote Electronic Transmitter options with standard 4-20mA output
- Redundant Back-up Sensors in every flow meter for added life expectancy
- Single Piece construction for easy cleaning
- Sensors never come into direct contact with passing fluid
- Teflon Coated Sensor area to minimize build up
- Factory Recalibration Available with web based order form
- On-Site Field Calibration Options
- 4 Year Warranty

Thermal Instrument Company has been serving the landfill industry with reliable flow meter instrumentation for decades.

Contact us today for more information on how our flow meter instruments can help you manage the landfill operation.



**Thermal Instrument Co.**

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