PROCESS RAMAN

Using process Raman as a Gas Chromatograph (AGA8) replacement in the analysis of LANDFILL GAS

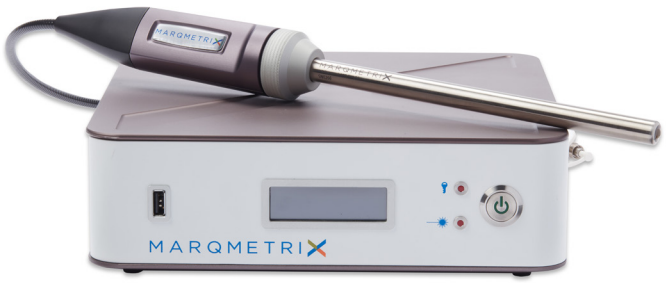
WHAT IS RAMAN?

Raman spectroscopy is an optical analysis technique. It relies on the measurement of the vibrational properties of molecules. Raman has revolutionized process analysis with its high-resolution compositional data, linear response to concentration, non-destructive nature, ability to measure samples in real-time, and NO sampling system or carrier gasses.

WHY RAMAN?

The landfill (renewable) gas industry has relied on an analyzer package of a natural gas chromatograph (and other laser analyzers) to measure landfill gas composition and perform all required energy calculations. Operational costs include carrier gases, sampling system maintenance, columns, and the need for experienced analyzer technicians to keep the GC running within specification.

A MarqMetrix® Raman spectrometer can be used as a "plug-and-play" replacement for the above total (AGA8) analyzer package while offering superior analysis that requires NO calibration – ever.



REQUEST A DEMO

MarqMetrix® All-In-One Raman System

RAMAN VS. GAS CHROMATOGRAPHY

	RAMAN SPECTROSCOPY	GAS CHROMATOGRAPHY
Analysis Time	Seconds	Minutes
Ease of Use	Yes	No
Sample Prep Required	None	Sample prep is required
Calibration	No; Factory-calibrated	Yes; Weekly maintenance
Setup Time	15 mins	Days
Scientist Required	No	Yes
Cost of Ownership / 10 years	$100,000	$1,000,000

TAKEAWAYS

- **A Raman spectrometer is easy to install:** NO sophisticated sampling system, carrier gas or consumables required
- **Life cycle cost is dramatically reduced**
  - NO analyzer calibrations
  - NO sample system maintenance
  - NO regulators and filters
  - NO sample valve maintenance
- **Improved process control**
  - Superior analysis data every 6 seconds
  - Ultra-stable solid-state device
  - More accurate data than gas chromatograph
- **Zero ongoing operating expenses:**
  - NO yearly planned maintenance by the vendor
  - NO weekly/monthly/quarterly/yearly maintenance by an analyzer technician
  - Ultra-stable solid-state device with NO moving parts

For more information contact:

206-971-3625

info@marqmetrix.com

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RAMAN IN ACTION: LANDFILL GAS (AGA8) PACKAGE APPLICATION NOTE

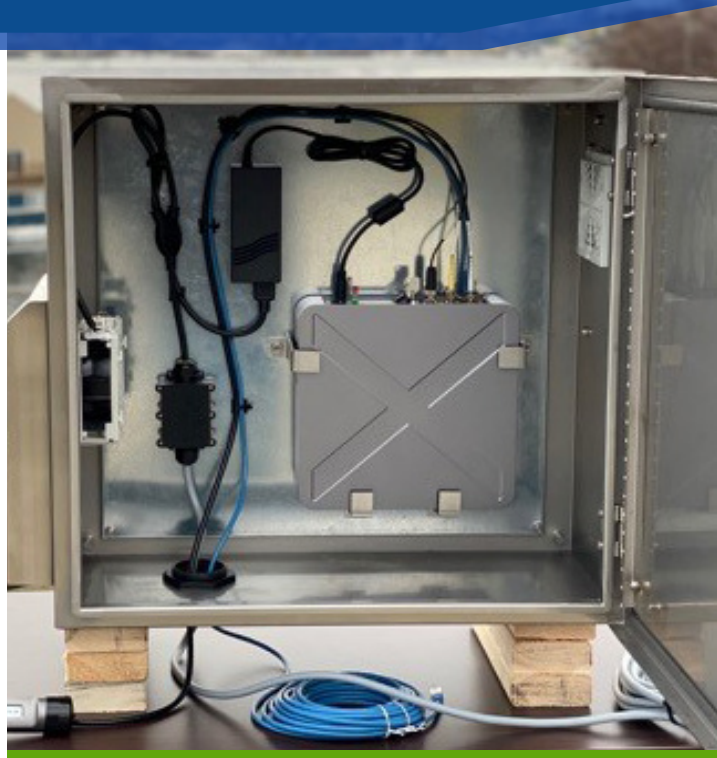
A manufacturer is currently using a **MarqMetrix All-In-One (AIO) Raman System** as a replacement for a multi-analyzer package for AGA8 total energy measurement on a landfill gas application.

Requirements:

- Replace the existing sample extraction probe with a simple MarqMetrix process BallProbe® immersion optic
- Replace existing sample transfer tubing with flexible armored weather-resistant fiber-optic signal transfer cable
- Remove the sample conditioning system and calibration system (neither are required for the MarqMetrix AIO Raman System)
- Remove the natural gas chromatograph (and possibly two dual laser analyzers)

Solution:

A single MarqMetrix AIO Raman spectrometer [mounted inside of a NEMA 4X welded 304 SS enclosure (24in x 24in x 16in), heated and cooled with thermostatic-control, certified to ANSI/ISA-12.12.01-2000 for use in Hazardous (Classified) Locations Class I Groups A - D Div. 2 (outdoor)] can economically replace a landfill gas chromatograph analyzer composition and energy measurement package.



MarqMetrix All-In-One Raman System in SS Enclosure
NO Sampling System

LEARN MORE ABOUT THE ALL-IN-ONE >

MARQMETRIX®

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