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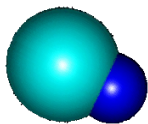
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CEMGAS Laser 5000 Analyzer Advantages & Benefits

- **Interference Free Gas Measurement**
- **Direct Measurement**
 - Sample Conditioning
 - No Moisture Removal
 - Low Temperature Sampling
- **Low Maintenance**
- **Pre-Calibrated**
 - Prime Measurement
 - No Re-Zero
- **Clean Sample Technology**
 - Low-Pressure
 - Low-Flow



CEMGAS Laser 5000 Analyzer

Direct **HCl** Laser Measurement

Low Pressure Sampling - Extremely High Resolution Laser

HCl analysis without ... interference:

- ... spectral overlap
- ... sample p-retreatment
- ... moisture removal

The **CEMGAS Laser 5000 Analyzer System** is a complete pre-calibrated scanning laser infrared spectrometer for HCl analysis without interference from any gases or moisture.

The **CEMGAS Laser 5000 Analyzer** utilizes the patented OFCEAS IR Laser technology for enhanced specificity, selectivity, accuracy and stability (no instrumental response drift)

The **CEMGAS Laser 5000 System** utilizes patented low-pressure/ low-flow sampling technology, negating the need for costly sample conditioning and moisture removal (up to 50%), providing a low cost installation with minimal maintenance.

NO INTERFERENCE.

CEMGAS Laser 5000 technology associated with low pressure sampling provides exceptional selectivity, enabling simultaneous multi-component measurement without interference, regardless of the matrix.

DIRECT MEASUREMENT. No sample pre-treatment.

CEMGAS Laser 5000 technology associated with low pressure sampling enables direct measurement. The low pressure in the sampling system removes any risk for chemicals absorption/ desorption and/ or condensation in the line.

PRIME MEASUREMENT.

No Re-zero; No Drift

CEMGAS Laser 5000 technology is a prime measurement. The zero information is contained in the signal, enabling automated and intrinsic re-zero of the analyzer.

EASE-OF-USE

The CEMGAS is pre-calibrated for the CEM's application. Initially packaged in a standard 19" rack, it includes a touch screen interface and on-board PC for local control and real-time display of results.

ROBUSTNESS.

The CEMGAS Laser 5000 Analyzer contains no optical moving parts and was designed and built strictly for industrial and on-board mobile applications

LOW MAINTENANCE. High MTBF.

In addition to containing no moving optical components, the IR sources (telecom laser) are characterized by MTBF's of 5-10 years.

CLEAN SAMPLE TECHNOLOGY.

The low pressure sampling system enables low flow rates (3-9L/h -0.11-0.33 cfh) without degrading response time. Accumulation of contaminants in lines and filters are greatly reduced.

EASE-OF-INTERGRATION

Packaged in a standard 19" rack mount with local control and display capabilities, the CEMGAS Laser Analyzer allows digital (Ethernet, RS485, RS232, Mod-Bus) and analog communications with remote diagnostic access

SAFE

ATEX compliant configuration available.

SAMPLING

Flow Rate: 3-9 L/h (0.11-0.33 cfm)
 Max. Temp: 600°C (1,110 F)
 Max. Humidity: H₂O (g) < 25% vol.—Standard
 H₂O (g) > 25% vol.—Study Required
 Pressure: 1atm. ± 100 mBar @ sampling point
 Sampling Line: Ambient Temp. > 10°C and H₂O < 20% vol.
 →simple polytube (no heating)
 Ambient Temp. < 10°C or H₂O > 20% col.
 →40°C heated line.

DIMENSIONS

Size: Standard 19" 4U rack.
 550 mm (21.9 in.) depth.
 Weight: 20 kg (44lbs)
 Options: Wall mounted.
 ATEX compliant integration.

ELECTRONICS

Display/Control: 5.7" diagonal color touch screen
 PC OS: Windows® XP®
 Software: WinProceas ©

INSTALLATION REQUIREMENTS

Operating Temp: 15-25°C (59-77F) - Standard
 10-40°C (50-104F) - Optional
 Power Requirements: 200W—100-220VAC—50-60Hz
 Compressed Air: 1-6 bar (oil free). Not provided.

DATA I/O

Standard: Ethernet protocol; RS 485,
 RS 232; ModBus.
 Optional: Analog I/O; TDR I/O.
 Other I/O's on request.

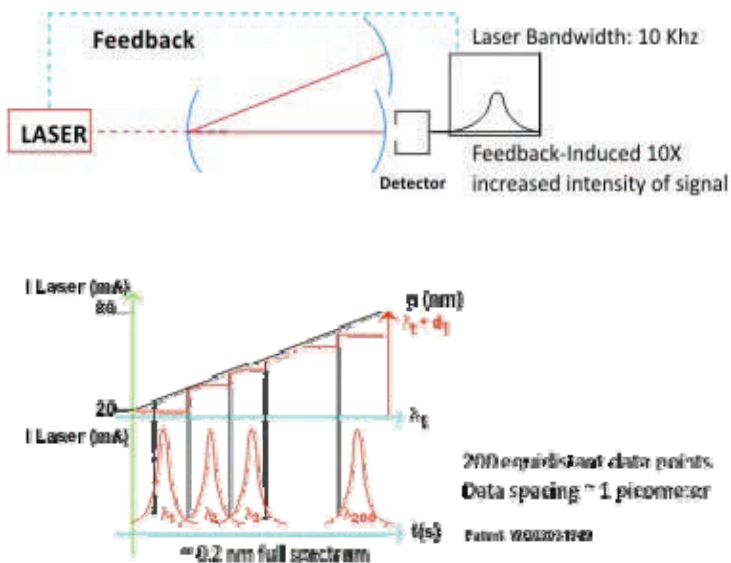
ANALYTICAL SPECIFICATIONS

STANDARD	Calibration Ranges	
HCl	0-10 ppm	0-200 ppm
NO	0-60 ppm	0-5,000 ppm
OPTIONAL		
SO ₂	0-25 ppm	0-5,000 ppm
CO	0-60 ppm	0-800 ppm
SO ₃	0-10ppm	0-1,000 ppm
CO ₂	0-20% vol.	
H ₂ O	0-20% vol.	
H ₂ S	0-10 ppm	0-1,000 ppm
NH ₃	0-10 ppm	0-1,000 ppm
N ₂ O	0-10 ppm	0-1,000 ppm
COS	0-10 ppm	0-1,000 ppm

LoD: < 1% of max. in range
 Response Time: < 200 seconds
 (with sample transfer time)
 Zero Drift: none.

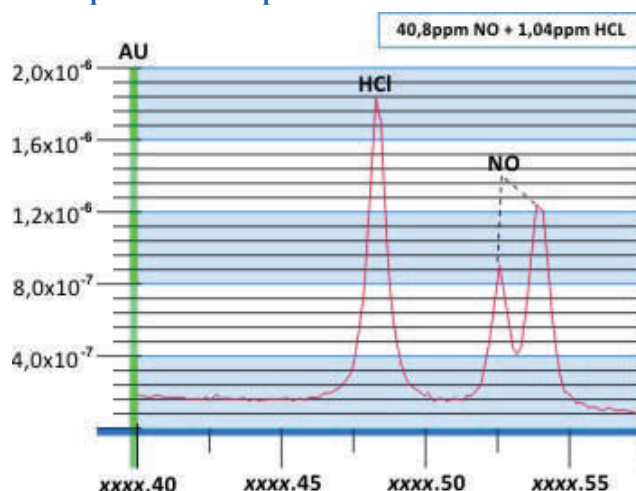
PRINCIPLE OF OPERATIONS

Optical Feedback Cavity Enhanced Absorption Spectroscopy



SPECTRA (Examples)

200 equidistant data points over 0.2nm



Added benefit of using 200-data points scanning IR Lasers:
 All Cemtek Laser CM HCl also can measure NO.



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