

QUALITY CONTROL



GASMET is an advanced gas analyzer, which can be configured to match current analytical requirements. GASMET provides outstanding performance in multicomponent analysis.

The exceptional speed and sensitivity of FT-IR spectroscopy are well known. We bring this performance to the production environment. In the example described in this note, GASMET controls the quality of a variety of products. It performs round-the-clock quality control measurements with high efficiency and moderate costs. A single analyzer measures gas concentrations from percentage levels to few ppm. All the calibrations are stored on the hard disk. GASMET automatically selects the appropriate analysis method for each end product.

Every process is unique. Finding the right solution can optimize production and help manufacturers gain a competitive edge. So let us suggest the best gas analyzer for the job - at a cost effective rate.

AGA

LEADERSHIP THROUGH QUALITY

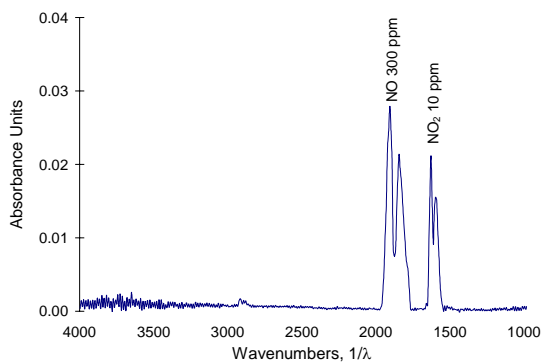
AGA, a multinational gas company, puts emphasis on absolute reliability of the gas analyzer systems. Accurate monitoring of gaseous substances is vital for process control and production efficiency.

AGA's brand new filling plant is fully automated. Each gas cylinder has a barcode label containing product information on its side. The intelligent transportation system is able to locate each gas cylinder. As the cylinder comes from the filling the transportation system moves it to the quality control area. A robot opens gas valves and sends the product information to the GASMET.

GASMET selects appropriate calibration and measures the concentrations of the gas components. GASMET transfers the analysis results to the central computer. Consequently, the gas cylinder is rejected or it passes the quality control.

In its business AGA offers innovative, profitable solutions, with the ability to continuously improve the product quality.

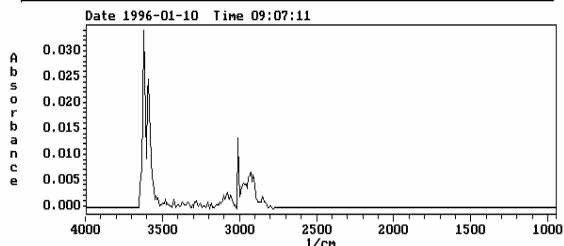
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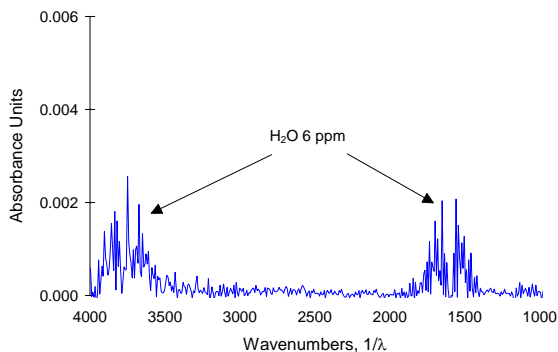
MISON®: To improve the welder's working environment AGA has developed a method for decomposing poisonous ozone by means of the shielding gas. AGA's method is patented in more than 20 countries. The MISON® shielding gases contain 300 ppm of nitric oxide, NO. During welding NO neutralizes ozone so that harmful concentrations do not arise. Welding properties of MISON® gases differ in each application. Therefore, GASMET is used to ensure that various MISON® gases have correct concentrations of each gas components.

CALCULATED CONCENTRATIONS OF ODOROX				
REFER.	CONCENTR.	UNIT	LOWER LIMIT	UPPER LIMIT
DMS	9.4090	ppm	6.5	10.5
CO2	330.21	ppm	0.0	500.0
CH4	9.4545	ppm	0.0	10.0
H2O	5.2727	ppm	0.0	10.0

ODOROX®: Even an increase of oxygen from 21 % to 24 % in the air doubles the combustion velocity. Odorization of oxygen is a preventive safety measure when working with oxygen consuming processes. It implies adding dimethyl sulfide, DMS, to oxygen so as to warn about accidental leakage by the smell. AGA has developed a new odorization system - ODOROX®. The system is reliable and safe, eliminating the risks of conventional odorization techniques. During the manufacturing process of ODOROX® AGA relies on GASMET performance to monitor DMS.



Impurities: Water vapor may occur as an impurity in various processes. To measure low humidity with traditional methods is a time consuming task. GASMET measures the humidity of a gas cylinder quickly and precisely. In addition, GASMET detects the presence of other impurities as well. AGA uses GASMET to detect impurities such as CO, CO₂, NO, NO₂, N₂O or SO₂ in medical oxygen, medical air and medical nitrogen.



compound	typical range	Typical GASMET performance		
		detection limit 3m, 180 s *	reproducibility **	repeatability ***
NO	0 - 300 ppm	1.0 ppm	0.3 ppm	0.4 ppm
NO ₂	0 - 10 ppm	0.1 ppm	0.02 ppm	0.01 ppm
N ₂ O	0 - 10 ppm	0.02 ppm	0.01 ppm	0.01 ppm
SO ₂	0 - 15 ppm	0.03 ppm	0.04 ppm	0.02 ppm
DMS	0 - 1500 ppm	0.1 ppm	0.06 ppm	0.05ppm
DMS	0 - 4 %	0.001 %	0.0002 %	0.0002 %
CH ₄	0 - 20 ppm	0.1 ppm	0.06 ppm	0.05 ppm
CO	0 - 100 ppm	0.1 ppm	0.03 ppm	0.03 ppm
CO ₂	0 - 400 ppm	0.1 ppm	not measured	not measured
CO ₂	0 - 99.99 %	0.02 %	0.004 %	0.004 %

* detection limit = $x_0 + 3\sigma$; x_0 = average of 200 measurements; σ = standard deviation of 200 measurements in N₂

** reproducibility = standard deviation of the average values of different measurement sequences in N₂

*** repeatability = standard deviation of 20 measurements in N₂