

AL4021

CONTINUOUS FORMALDEHYDE MONITOR

FOR AIR AND LIQUID SAMPLES IN PPB RANGE

AL4021 HCHO ANALYZER

PRECISION IN EVERY MOLECULE

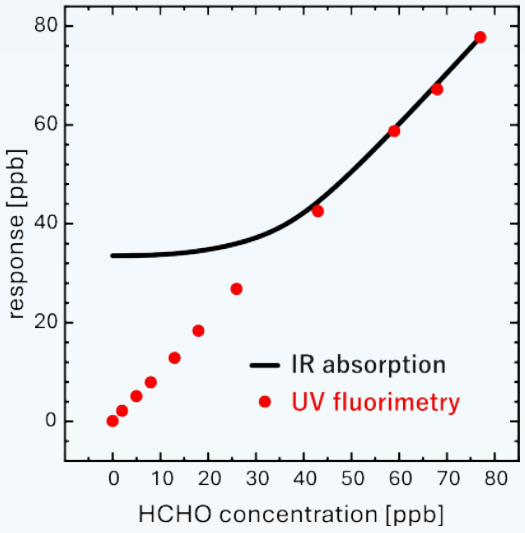
About

The AL4021 is a fully automatic and continuous formaldehyde (HCHO) analyser for gaseous and liquid samples, based on the established acetyl-acetone (Hantzsch) reaction. This method reduces the interferences from other analytes, water and vapor significantly and results into an unparalleled selectivity, which is the key to a significantly higher sensitivity compared to conventional IR absorption methods (CRD, PAS, QCL).

Technology

The detection of formaldehyde is based on the liquid phase reaction of formaldehyde with acetyl acetone (2,4-pentadione) and ammonia. This reaction produces 3,5-diacetly-1,4-dihydrolutidine (DDL), which is excited by UV light at 410nm and shows a strong fluorescence around 510nm. A highly sensitive photomultiplier is used to measure even the smallest amount of fluorescence light.
As the AL4021 can measure both gases and liquids, it can be easily and traceably calibrated with a known HCHO solution.

UV fluorimetry Aero-Laser AL4021	IR absorption (PAS, CRD, QCL)
Calibration	
Liquid standard: Easy, cheap, traceable.	Permeation gas generator or instable span gas: Expensive, time consuming, not taceable.
Selectivity	
Highly selective, very low interferences even at low ppb levels.	Interferences by other analytes, water (vapour), dust and particles.
Robustness	
Resistant against particles and dust, easy to clean and maintain.	Particles and dust highly affect the sensitivity. Absorption cell can't be cleaned.



Simplifying Formaldehyde Analysis

Simplicity is key with the AL4021. Its fully automated operation and intuitive, industry-proven design ensure that it can be easily used by anyone in your team. Its unique technology allows experts to monitor formaldehyde in the lowest ppb ranges, not only under lab conditions but also in harsh industrial environments. This ease of use, combined with the possibility to perform parallel measurements using multiple sample chambers, significantly reduces the workload, allowing your team to focus on what they do best. Low maintenance requirements and automatic calibration, further contribute to your operational efficiency.



Measuring setup for emission control of wood products with test chambers

Applications

- Environmental and climate research
- Indoor air quality, "green building" certificates
- Chemical industry: Process and quality control, fence-line monitoring
- Healthcare: Exposure in pathology department
- Air cleaners: Emission control (GB/T 18801:2015)
- Wood and plastic materials: Emission control (ISO 717-1, ASTM D6007, ASTM E1333)
- Automated sampling with up to 16 test chambers

Benefits

- Traceable, reliable results
- Nearly real time monitoring
- Transparent and simple calibration by the user
- Automatic operation, stand-alone possible
- Easy to intergrate in existing environments thanks to common interfaces
- Compatible to international emission standards
- Resonable price, low total cost of ownership
- Ease of operation and low level of maintenance



Emission control of Air cleaners according GB/T 18801:2015

Precision is our Mission

In the quest for safer environments and superior product quality, the AL4021 formaldehyde (HCHO) analyzer emerges as a vital tool. Designed to meet the rigorous demands of modern industries, health and safety and environmental monitoring, this advanced analyzer combines unparalleled sensitivity and precision with ease of use, offering an unmatched solution for monitoring formaldehyde emissions and concentrations in both gases and liquids.

Specifications

Detection techinque	Continuous, fluorimetric detection using acetyl-acetone (Hantzsch reaction)
Detection limit	<100ppt (gaseous), <150ng/L eq. $<2 \times 10^{-9}$ molar (liquid)
Linear range	0.1ppb to 3000ppb (gaseous), 150ng/L - 5mg/L (liquid)
Noise	2% full scale
Time resolution	~90sec (10/90)
Sample	Liquid and gas (>0°C to +120°C)
Calibration	Automatic, using liquid standard
Integration	RS232 and LAN interface, data logging software available
Operation data visualization	Graphic user interface (7" touch panel) and remote via RS232/LAN
Data storage	USB drive and internal data backup
Weight and dimensions	15kg, fit for 19" rack (whd: 45cm x x15cm x 56cm)
Power requirements	110VAC / 220VAC, 110W

AERO-LASER GMBH

Unterfeldstr. 12
D-82467 Garmisch-Partenkirchen
Germany
Tel: +49 8821 94386-0
info@aero-laser.de
www.aero-laser.de

Follow us on LinkedIn