

GC955

SYNTECH SPECTRAS H2S ANALYSER



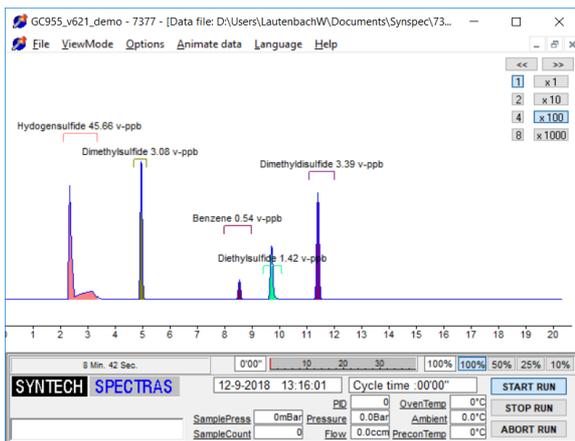
The Syntech Spectras analyser for measurement of sulfur compounds in ambient air

Many sulphur compounds are toxic.

The smell of sulphur components is a problematic issue at many industrial sites. Sulphur compounds may be emitted at desulfurization in refineries.

Sulphur is also used for producing certain types of paper. Specialized sulphur compounds are produced for odourisation of natural gas. Some essential pharmaceuticals contain sulphur.

At waste deposit sites and at water treatment plants the stench problems are partly due to sulphur components.



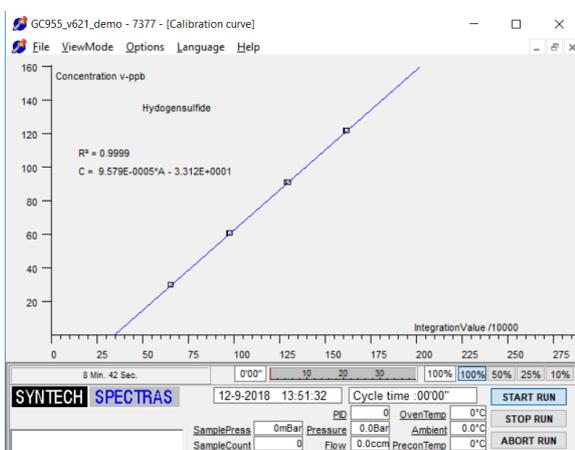
Calibration of mercaptans, sulphides, aromates.

Hydrocarbon selection

Among the many sulphur components that can be measured two groups stand out: the mercaptans and the sulphides.

Mercaptans: methyl mercaptan, ethyl mercaptan, propyl mercaptan, butyl mercaptan etc. (also named thiols), Sulphides and disulphides : hydrogen sulphide, carbon disulphide, diethylsulphide, Dimethyldisulphide (DMDS), dimethylsulphide (DMS) etc.

With the same system other components like for example benzene can be measured.



Calibration curve of H2S

Syntech Spectras GC955 810 Mercaptan analyser

This analyser is a gas chromatograph with a built-in cooled pre-concentration system.

Sulfur components and also other hydrocarbons are first pre-concentrated on Tenax TA. To pre-concentrate H2S an additional trapping material is added in the same cooled pre-concentration system.

After trapping the compounds are desorbed thermally at a relatively low temperature and then

The use of a nafion sample dryer is not advised due to loss of mercaptans by removing them with the water.

The setting for the column has been optimized to avoid interference from higher boiling hydrocarbons.

Challenges in the analysis of sulfur compounds:

Three issues stand out when monitoring sulfur compounds: all are related to the reactivity of mercaptans. Sulfides are less reactive.

Reactions of mercaptans in air and on reactive surfaces:

Many customers demand measurement of mercaptans but it is better to also include the sulfides.

Mercaptans are unstable and can be converted by catalytic activity to the more stable sulfides or by oxidation into other compounds.

The disulfides are even more stable and are formed out of the mercaptans.

The smell of these compounds is not very different, so only by measuring all these compounds you can determine the air quality.

To prevent the reaction of mercaptans in/on the sample lines these lines need to be selected carefully.

Calibration:

Calibrating the mercaptans is complex, bottles with mercaptans are not stable, except if the bottle had special treatment.

We recommend to use permeation tubes. However in reaction with oxygen the mercaptans will turn into sulfides.

Therefore dilution with nitrogen is required. It will take some time to stabilise.

Sample conditioning:

Drying the sample with a nafion dryer is not recommended as the mercaptans will disappear.

Analyser details

Standard industrial PC with Windows embedded. User-friendly software stores all the chromatograms on the hard disk and data can be interpreted easily. Data can be transferred by network and modem connection. Analog and digital output options are available to communicate with other data logging systems using several data protocols.

Simple operation, good reliability and low maintenance cost.

SYNTECH SPECTRAS GC955 SERIES 810 H2S ANALYSER

SPECIFICATIONS

PID detector.

Lowest detection level depending on component from 0.2 ppb for Methyl mercaptan to 0.01 ppb for disulphides. Standard range: 0-30 ppb (can be extended upon request).

Included items: special cooled pre-concentration trap at 10 °C,

column special sulphur, 2 + 28 mm, 0.32 mm ID

Standard cycle time 20 minutes (30 minutes on request), temp program 45 °C – 110 °C, flow program

REPRODUCIBILITY

typical <3% at 1 ppb (dimethyl sulphide, with capillary column)

GAS CONSUMPTION

Nitrogen, quality 5.0, 4 bar, 10 ml/min

DIMENSIONS

19" rack, 5 standard Height Units, depth 43 cm net

(W 48,3 D 43 H 22 CM), WEIGHT 20 kg

POWER DEMAND

230 V AC, 100 VA (115 V AC available) 50/60 Hz

INCLUDED HARDWARE

Internal industrial x86 based computer, solid hard disk, 10.1" full colour touchscreen

COMMUNICATION

Direct control via touchscreen, keyboard or mouse. External data communication via RS232, analogue, digital outputs and TCP-IP.

INCLUDED SOFTWARE

Windows embedded and GC 955 software.

Standard available protocols: ASCII-terminal, Hessen, Gesytec, MODBUS, other protocols on request

APPROVALS

CE approval for EMC conformity: EN 61000-6-2, EN 61000-6-3, EN 61010, EN 61326

OPTIONS

It is possible to monitor also benzene and toluene in a 20 minute cycle. In a 30 minute cycle also xylenes can be monitored.

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