TOTAL SULPHUR ANALYSER

MODEL TS 3000

Sulphur emission regulation

The Environmental Protection Agency has proposed a regulation to cut the sulphur content in diesel fuel from the current 500 ppm to 15 ppm by 2006, a 97% reduction. Diesel fuel must be significantly cleaner to ensure that pollution control technology will be effective on trucks and buses. As a result, many refineries are rapidly changing their refining- and quality control techniques.

The Thermo Euroglas Total Sulphur Analyser, model TS 3000, is the most advances trace UV-fluorescence sulphur analyser on the market today. It produces very accurate and reliable data at ultra-low levels (from 30 ppb!) in liquid, solid and gas samples.
The TS 3000 is matrix independent and in true Thermo Euroglas tradition, fully complies with the international industrial (ASTM, IP, EPA) standards.

The Euroglas TS 3000 offers you the following benefits:

1. Versatility.
2. Flexibility.
3. Productivity
4. Reliability.

Superior combustion/detection technology

After sample introduction, the complete matrix is combusted at 1000 °C in a special quartz tube design. The sulphurdioxide, which is formed, is led through a polymer-based scrubber into a fluorescence chamber, where pulsating UV light excites the SO_2 molecules.
As the exited SO_2 molecules decay to lower energy states they emit UV light which is proportional to the SO_2 concentration. The bandpass filter allows only the wavelengths emitted by the exited SO_2 molecules to reach the photomultiplier tube (PMT). The PMT detects the UV light emission from the decaying SO_2 molecules.
Detection of light emitted during the relaxation of excited sulphur dioxide (SO_2), takes place in accordance with the following reaction scheme:

$$R\text{-}S + O_2 \longrightarrow SO_2 + CO_2 + H_2O$$

$$SO2 + h\,v_1 \longrightarrow SO_2^* \qquad (1)$$
$$SO_2^* \longrightarrow SO_2 + h\,v_2 \qquad (2)$$

The application of our high-end SO_2 detector assures ultra sensitive and stable signal processing.

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Applications

The Euroglas TS 3000 is ideal for use in a wide range of applications:

High-grade chemicals	Petroleum products	LPG and gases
Paraffin	Naphtha	Propylene
aromatic carbohydrates	petrol	ethylene
methanol	kerosene	natural liquid gas
toluene	crude oil	liquid petroleum gas
benzene	polypropylene	butadiene
polycarbonate	catalysts	
acetic acid, etc	resins	

Extra power: TS-UV module on TN 3000

The Total Nitrogen analyser, model TN 3000, can be extended into a fully-fledged nitrogen & sulphur analyser in a matter of minutes. The sulphur module has a short start-up time and is able to perform a large number of **simultaneous nitrogen & sulphur** analyses.

How does it work?

The UV-fluorescence module is connected to the TN 3000 as of an add-on package. Both sulphur and nitrogen detectors measure in-line specifically SO_2 and/or NO_2. Data handling will be done with the same software and computer.

Key advantages of the sulphur UV-Fluorescence module

- One instrument two results
- Lower investment costs because of two-in-one analyser (TS/TN)
- Enables complementary analyses.
- Saves precious bench space.

TECHNICAL SPECIFICATIONS TS 3000

Dimensions	1017(W) x 390(H) x 590(D) mm		40,0(W) x 15,4(H) x 23,2(D) inches
Voltage	115/230 V, 50/60 MHz		
Power requirements	1200W		
Gas connector	1/8"		
Gases	Oxygen 99,6% (O_2), 2.6 (medical grade) Argon 99,998% (Ar), 4.8 (technical grade)		
Gas pressure	1 - 3 Bar		
Furnace voltage	2x22V, 50/60 Hz		
Furnace Temp. Sensor	2xNi-Cr/Ni		
Furnace temperature	1250°C (max)		
Furnace cooling	Continuous, Fan assisted		
Automatic boatdriver	Computer controlled adjustable speed		
Sample introduction	Solids: quartz boat Liquids: microliter syringe		
Sample injection volume	5 - 250 µl (liquids)	5 - 999 mg (solids)	1 – 50 ml (gases)
Detector	UV-fluorescence		
Detector accuracy	better than 2% CV		
Computer requirements	Pentium PC, 300 MHz, 16 Mb internal memory		
Software	Windows™-based		
Printer	serial printer - any Windows compatible printer		
Ambient temperature requirements	5 to 35°C		

ANALYTICAL SPECIFICATIONS

Measuring ranges *	
TS liquids	30 ppb – 5.000 ppm
TS solids	1 ppm – 10.000 ppm
Repeatability	better than 2%
Average analysis time	2 - 4 minutes
Sample matrix	Liquids, particulated samples, semi solids and solid samples
Standards	ASTM D5453

- Analytical specifications depends on typical applications

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