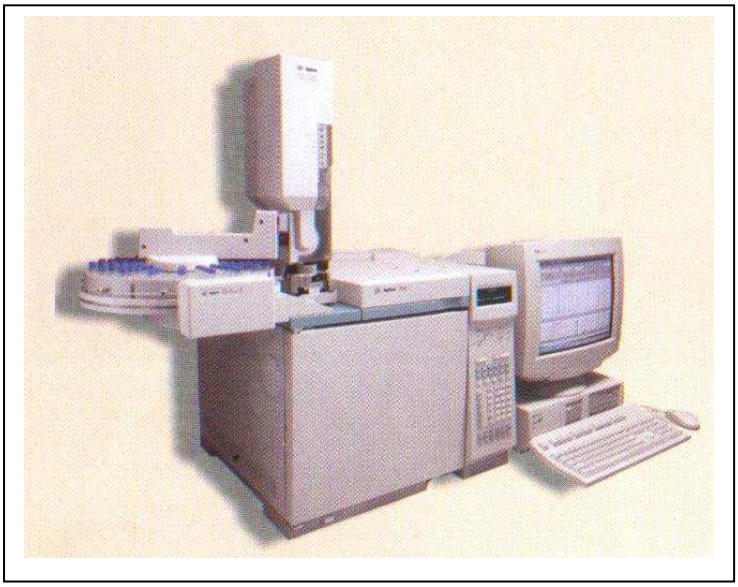
LABORATORY TOTAL SULPHUR ANALYSER FOR GASEOUS AND LIQUID SAMPLES

LABFLUOSULF™

A S T M D 5453 / D 6667 I S O 20 846 UV FLUORESCENCE

TYPICAL APPLICATIONS

- Motor Vehicle Fuels.
- Ethylene / Propylene plants.
- Light Fuel Oil.
- Naphtha Platformers.
- Alkylation Units.
- Aromatics.
- Ammonia plants.
- L.P.G.
- CO_2 purity.
- Kerosene and jet fuels.
- Natural Gas.



SPECIAL FEATURES

- Use plant instrument air only.
- Wide Rangeability.
- Full digital system.
- Short Response Time.
- No matrix effects, no CO_2 interference.
- No zero / span drift.
- PPB sensitivity.
- Alphanumeric digital display in PPM, PPB, mg/m^3.
- Optical keyboard with user friendly software.
- 4-20mA and RS 232/485 outputs.
- Advanced communications, remote control.

OPERATING PRINCIPLE

The sample is precisely metered in a continuous flowing stream of air containing oxygen. The sample and the oxygen (Air) are heated together in a furnace at a temperature between 800℃ and 950℃, depending on the appl ication, where oxidation transforms sulphur compounds, even heavy ones like thiophene or dibenzothiophene, into SO_2 and reaction gas product.

The resulting SO_2 is measured by an UV Fluorescence analyser. A monochromatic energetic source energizes the $S0_2$ molecules, and the electrons in fundamental status are excited. The electrons are in an unstable status and then go back to the fundamental status. This electronic fall creates an energy dissipation and an electromagnetic emission of photons.

The number of SO_2 molecules is proportional to the number of resulting photons. A photomultiplier detects these photons and converts the resulting signal into an indication of SO_2 concentration. This concept of conversion, coupled with the field-proven analyser, makes the LABFLUOSULF™ the most state-of-the-art laboratory Total Sulphur Analyser available today.

OPTIONS

- ♦ Motorized syringe drive Model for liquid/gas sample injection.
- ♦ Gas / Liquid syringes.
- ♦ Sampling for on line continuous analysis of gaseous samples.
- ♦ Double stage pressure regulators for bottles.
- ♦ Calibration liquid solutions.
- ♦ External Gas calibrator.
- ♦ External PC, latest generation
- ♦ Zero Air Generator
- ♦ LPG sampling system with heated pressure regulator
- ♦ Cross over manifold regulator for 2 gas bottles
- ♦ Ethernet capability

STANDARD SPECIFICATIONS

- *Measuring principles*	:	Conversion of sulphur compounds in sulphur dioxide (oxidation in presence of oxygen). Detection of the resulting SO_2 by U.V. fluorescence.
- *Applications*	:	For liquid hydrocarbons up to C25 and above depending on the range.
- *Measuring methods*	:	ASTM D 5453 / ISO 20846 for liquids. D 6667 for gases.
- *Detector*	:	U.V. lamp/photomultiplier.
- *Electronics*	:	Fully microprocessored including PC and monitor (optional).
- *Range unit*	:	PPM by weight - PPM by volume - mg/m3 - selectable.
- *Measuring rangeability*	:	0-1 PPM-W up to 0-2000 PPM-W for liquids. Above on request. 0-500 PPB-V up to 0-2000 PPM-V for gases. Above on request.
- *Minimum detectable*	:	100 PPB-W for liquids 50 PPB-V for gases.
- *Sensitivity*	:	0.5% of the concerned range.
- *Response time*	:	Between 1 and 5 minutes 90% of scale depending on the application and range
- *Linearity*	:	± 0.5% of the calibration full scale (2 λ)
- *Repeatability*	:	± 1% of the calibration full scale (2 λ)
- *Accuracy*	:	± 1% of the calibration full scale (2 λ)
- *Zero drift*	:	Automatically compensated.
- *Span drift*	:	Automatically compensated.
- *Calibration libraries*	:	On site client calibration.
- *Power supply*	:	110/240 VAC ±10 % - 50/60 Hz - ***to be stated***.
- *Power consumption*	:	1,500 VA on 230 VAC.
- *RFI protection*	:	IEC 8013 Level 3 (CE Mark).
- *Analog output*	:	4-20 mA, self powered, isolated, 600 Ohms maximum load.
- *Digital output*	:	RS 232 or RS 485 connected to the PC.
- *Software*	:	WINDOWS® based
- *Communication link*	:	Ethernet with embedded software (optional).
- *Keyboard*	:	Optical, 16 keys, TOUCHSENSE™ type.
- *Analyser video display*	:	Back-lit, top-biased LCD.
- *Sample inlet pressure*	:	Atmospheric for liquids 2 up to 10 bar for gases
- *Liquid sample injection system*	:	Via a syringe.
- *Liquid sample injection rate*	:	10 – 50µl/min depending on the application.
- *Gas sample injection system*	:	Digital mass flow controller. Remotely adjustable, indicated on video display.
- *Gas sample injection rate*	:	20-200 ml/min depending on the application.
- *Instrument air quality*	:	Standard instrument air, oil and sulphur free, dew point – 20°C.
- *Instrument Air inlet pressure*	:	5 - 10 bar , stability ± 1 bar.
- *Instrument Air flow rate*	:	7 – 12 l/min (Total flow).
- *Instrument air cleaning system*	:	Optional, self regenerating. Dew point -50°C, sulph ur 10 PPB with 10 PPM inlet. Hydrocarbons 1 PPM with 100 PPM inlet. (ZEGEN)
- *Conversion / dilution air flow rate*	:	1.5 up to 2 l/min (from the instrument air cleaning system).
- *Permapure / kicker air flow rate*	:	5 up to 10 l/min.
- *Conversion / dilution air flow path*	:	Fully digital. Remotely adjustable. Indicated on the video display.
- *Membrane dryer / kicker air flow path*	:	Fully digital. Remotely adjustable. Indicated on the video display.
- *Sample/air preheater*	:	100 – 250°C. Remotely adjustable. Indicated on the video display.
- *Conversion furnace*	:	Coiled type. Maximum temperature 1200°C. Remotely a djustable. Temperature depends on the application. The temperature is indicated on the video display.
- *Reaction tube*	:	Quartz (ceramic for applications above 1050°C).
- *Instrument air flow alarm*	:	Included with a shut off valve on the sample line to stop the sample flow in case of air fail.
- *Sample vent*	:	To atmosphere. Stable back pressure allowed, maximum 0.5 bar.
- *Area classification*	:	General purpose bench type cabinet.
- *Required bench sizes*	:	L 1,500 x D 800 mm
- *Ambient working temperature*	:	+10°C up to +40°C. ±2°C stability required for opti mal performances. (0.1% drift per °C).
- *Storage temperature*	:	-10°C up to +55°C, 0 - 95 % R.H non condensing.
- *Material*	:	Stainless steel, Teflon. All components in contact with the sample are compatible with sulphur.
-*Fluidic connections*	:	1/4" NPT Female bulkhead unions.
- *Weight*	:	40 kg approx. (Without accessories)

In our continuing research and development, we reserve the right to make any model revisions and specification changes without prior notice.

DelMar™

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