

# trace SN cube



## ppb Analysis At Its Best

The continuously increasing requirements for environmental protection mean further decreasing threshold values for sulfur or nitrogen in fuels. Instruments for measuring these components have to correspond to these future requirements in their performance.

Therefore, Elementar as the technology leader in elemental analysis, has developed the top level instrument for sulfur and nitrogen analysis which safely and accurately analyzes sulfur or nitrogen concentrations in mineral oils and other petrochemical products in the lower ppb range and exceeds the requirements of today's standards by far.

### Automatic sample feeding

The liquid autosampler VLS serves for precise, septum-free injection of up to 40  $\mu\text{l}$  sample for N analysis and even up to 80  $\mu\text{l}$  for S in just a few seconds injection time. Optionally, a solid sampler for up to 120 samples and a sampler unit for gas analysis can be provided.

### Full combustion

The patented catalytic combustion at almost 1200°C allows 100% oxidation also for large sample amounts with short injection time and sharp peaks. Gas drying by means of the Permapure counterflow method follows directly after the combustion.

### Perfect gas control

$\text{SO}_2$  is collected on an adsorber tube acc. to the patented Elementar procedure and thermally released time delayed. This leads to a sharpening of the S peak and separation of interfering nitrogen oxides at the same time. Electronic mass flow controllers serve for stability of the measurement and of the calibration for months.

### Sensitive detection

The applied detectors are CLD for NO and UV fluorescence for  $\text{SO}_2$  according to the ASTM standards. They are high performance instruments with an extreme sensitivity also for the upper measuring ranges up to 1000 ppm.

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## State of the art microelectronics

The **trace SN** cube has full digital control of all functions. This results in completely new possibilities of automatic operation as well as remote control and diagnosis over the internet.

## High class software

The Windows® based software allows full instrument control from a PC. Continuous monitoring of real time conditions of the analyzer in both numerical and graphical form. Data safety and validity can be assured with the available 21 CFR Part 11 option.

## Large variety of applications

The **trace SN** cube is able to determine S and/or N, separately or combined, in liquids, solids or gases depending on the instrument version. Chlorine analysis is an option as well.

## Easy to use and maintain

The analyzer works fully automatically and almost maintenance free in long time operation. There are no special skills regarding chemical analysis or software required.

## Low cost per analysis

The only consumable worth to mention is pure carrier gas which is budget-priced synthetic air in case of S and Cl analysis. The unique 10 years warranty for the furnace serves for further savings.

## Low installation requirements

Only 48 × 55 cm laboratory bench is sufficient even including autosampler. Just one gas supply and a regular, electrical connection from 100 to 230 V is required.

## S/N Trace Analysis has never been this efficient

<b>Analysis method:</b>	High temperature combustion and detection of SO <sub>2</sub> with UV fluorescence and/or NO with CLD as well as optional HCl with sensor technique (patent applied for)
<b>Standards:</b>	ASTM-D-6069, DIN 51444, ASTM-D-5453, DIN 20846 Safety: CE label, EN 61010-1, EMV low voltage directives 2006/95/EG
<b>Digestion temperatures:</b>	furnace temperature at 1150-1200 °C, during combustion temporarily 1800 °C are reached
<b>Measuring range*:</b>	S: 10 ppb - 1000 ppm      N: 30 ppb - 1000 ppm
<b>Detection limit*:</b>	S: 3 ppb                      N: 10 ppb
<b>Analysis time*:</b>	approx. 6 min (for N in fuel)
<b>Sample weight*:</b>	up to 80 µl (for S in fuel)
<b>Sample feeding:</b>	standard: automatic liquid injection of up to 60 samples option: solid sampler of up to 120 samples option: gas/LPG injection
<b>Instrument control:</b>	Operation and control via PC under Windows®; software includes e.g. statistical functions and almost unlimited memory capacity. Remote control via internet is possible. In full compliance with 21 CFR Part 11 (option).
<b>Gases:</b>	synthetic air for S and Cl analysis O <sub>2</sub> /Ar-mixture for N and/or SN analysis
<b>Electrical connections:</b>	100/110/200/230 V, 50/60 Hz, 1.8 kW
<b>Dimensions:</b>	48 × 55 × 55 (W × D × H)
<b>Weight:</b>	approx. 60 kg

