

# SPECTRO 200/200T

## Compact ED-XRF spectrometer



A small, robust, easy to use instrument is indispensable for many applications in the field of energy dispersive X-ray fluorescence analysis. The SPECTRO 200/200T™ is the perfect answer to these requirements. It facilitates the quantitative and qualitative non-destructive analysis of liquids, solids, powders, pastes, slurries, films, coatings and many other materials. Up to six elements per calibration model can be measured simultaneously and fully automatically. It is a high performance instrument despite its small dimensions and low weight, and produces reliable analyses even when operated by non-technical staff with no special training.

The SPECTRO 200 can be powered by batteries. Its practical size also means that it can be used virtually anywhere - in

the laboratory, in the production department, on site, even in continuous on-line systems.

The menu-oriented software is operated using the integrated large scale keypad and allows all processes to be carried out simply, completely and efficiently. To start the measurement simply press the ANALYZE button - everything else happens automatically: even the results are printed on the integrated printer.

Sample preparation time is negligible. Operating the instrument requires only a small amount of consumables and no reagents. Results are produced in seconds thanks to rapid data intake and processing.



*Model 400 Remote Probe for use in analyzing large samples*

The multi-source capability of the SPECTRO 200/200T means that up to 6 elements across a wide range of energies can be analyzed simultaneously. It is equipped with either an X-ray tube or radioisotope sources, depending on the requirements of the customer. This choice of source guarantees that the instrument produces the best possible analytical performance.

The optional tunable technology improves the performance even further. It ensures optimum excitation of certain elements so that very precise measurements can be made for elements which previously were considered either too light or of too low an energy for energy dispersive X-ray fluorescence analysis, e.g. magnesium. With the optional helium flush with very low flow rates, the low energy performance is breaking new ground. It is now even possible to determine sodium.

The SPECTRO 200/200T has an exceptional, automatic stabilization which eliminates measuring errors caused by instrument drift and makes the operation of the instrument as smooth as possible. It is also possible to have automatic corrections which compensate for changing environmental influences.

The standard software, SELFCAL™, permits the calibration of the instrument and simple modification of existing calibrations.

Samples can be rotated or agitated using the optional sample rotation. The rotating mode is useful for the analysis of coatings, powdered samples or pellets, which are possibly not completely homogeneous. The agitate mode is suitable for maintaining sediments in solution for the duration of the analysis.

Sulfur, chlorine, vanadium, lead and nickel in crude oil, petrol and diesel –

Silicon, calcium, phosphorus, sulfur, cadmium, barium and zinc in lubricants and additives –

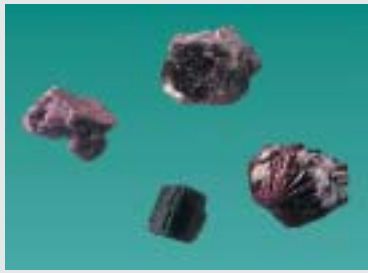
Lead and selenium in glass –

Titanium, iron, aluminium, selenium, chlorine, zinc and silicon in cosmetics and body care products –

Chromium, copper and arsenic in wood –

Titanium and zinc in polyester –

Chlorine, tin, sulfur and calcium in rubber, and more than 2000 further applications have already been developed in our laboratories.



**Applications**

*The SPECTRO 200/200T is the perfect instrument for hundreds of applications. Typical applications include the analysis of oil and petroleum products, plastics, rubber, textiles, paper, polyester, metals and precious metals, glass, solutions and slurries, foodstuffs, medicaments, cosmetics, minerals, ores, pharmaceutical products and woods.*



The SPECTRO 200/200T is available in a customer-specific version and also in three standard versions, each with an optimized configuration.

The Petroleum Analyzer is optimized for the elements Ni, V and S in many areas of petroleum analysis. Typical analysis times for crude oil, petrol (gasoline), diesel fuels, paraffin, kerosene and many other petroleum products are less than 5 minutes.

The Sulfur Analyzer measures sulfur not only in diesel and petrol (gasoline) but also in crude oil, paraffin, kerosene, plastics, sulphur anodized coatings and other applications. Routine analyzes do not require helium.

The Silicon on Paper Analyzer offers a complete selection of coating gauges for silicone including a fully automated continuous scanner, a bench-top instrument for coupon analysis, and others depending on your particular needs.

# Technical Data

## Measurement Capabilities

- $^{12}\text{Mg}$  ( $^{11}\text{Na}$  upon request) up to  $^{92}\text{U}$
- Determination from ppm up to 100 %, depending on the matrix and the element being analyzed
- Direct analysis of solids, liquids, powders, pastes, slurries, coatings, films, filter deposits
- Typical sample size 15 ml powder or liquid, solid samples up to a diameter of 65 mm, unlimited size if the external test probe is used
- Analysis time – adjustable in steps of 1 second; typical analysis times between approx. 10 and 100 seconds
- Maximum ambient temperature 30° C

## Measurement System

### X-ray excitation

- 200/400 model: sealed low energy radioisotope source ( $^{55}\text{Fe}$ ,  $^{109}\text{Cd}$ ,  $^{241}\text{Am}$  or  $^{244}\text{Cm}$ ) in a vast number of activity levels
- 200T model: X-ray tube with one of a wide selection of targets: Rh, Ag, Mo, W, Fe, Ti, etc.

### X-ray detector

- High resolution gas-filled proportional counter: Ne, Ar, and Kr

### X-ray filter

- 200/400 model: up to 11 sequential detector filters
- 200T model: up to 5 sequential source filters

## Data Evaluation

- Integrated Intel microcontroller with 128k RAM and 128k EPROM memory
- 2-line, 16 column liquid crystal display
- Approx. 12 cm wide thermal printer, 40 or 80 characters per line in text mode, 320 dots per line in graphics mode

## Software

- Complete control of filters, sources, printer, date and time
- Alphanumeric sample identification
- EPROM-programming
- Options and accessories
- SELFCAL™ enables new calibrations to be set up and existing ones to be modified

## Spectrometer Data

- 200/400 model: 35 W, 110/220 VAC or battery
- 200T model: 60 W, 110 or 220 VAC
- 200 model: approx. 480 x 380 x 230 mm (19 x 15 x 9 inches) 16 kg (35 pounds)
- 200T model: approx. 480 x 380 x 240 mm (19 x 15 x 9.5 inches) 18 kg (40 pounds)
- 400 model: approx. 200 x 200 x 100 mm (8 x 8 x 4.5 inches) 4.5 kg (10 pounds)

## Options

- External test probe (400 model)
- Sample rotation
- Battery package
- Sample plates
- X-ray filters
- Helium flush

## Further information

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