

Total Sulfur (TS) and Total Sulfite, SO₂/H₂S Analysis

By Combustion, Acidification, and Coulometric Detection

Applications include:

amine solutions, seawater, ocean sediments, atmospheric gases, petrochemical industry, production-scale brewery operations, groundwater, inorganics, wines, total sulfur in organics, coal, geological materials, food, beverages, etc.

The CM350 Total Sulfur and Total Sulfite Analyzer is a complete analytical system allowing the direct measurement of total sulfur and total sulfite in a wide variety of sample matrices and concentrations. Typical applications include the determination of total sulfur (by combustion) and the determination of SO₂/H₂S (by acid evolution). The CM350 easily handles solid or liquid samples with concentrations from ppm levels to 100%. Since the coulometric efficiency is 100 percent, sample calibration is not necessary. The linear range and accuracy of the coulometric technique exceeds that obtained by other detection methods. UIC's analyzers are rugged, accurate and adaptable to most applications. They are used extensively in industrial, research and educational laboratories worldwide.

The CM350 system includes the following components pictured below:



CM5330 Acidification Module

- 10-, 25-, 50- or 100-ml reaction vessels
- Selectable volume acid dispenser
- Internal air pump with flow controller
- Controlled sample heating and stirring
- Pre-acidification scrubber for removal of SO₂/H₂S from carrier gas

CM5017S Coulometer

- No user calibration
- Wide, linear dynamic range
- User selectable display units
- USB Flash Drive storage

CM5380 Dual Zone Furnace with CM5382 Sample Introduction Kit

- Programmable up to 1100 °C
- Separate catalyst zone
- Automated oxygen dosing
- Split-tube furnace design for easy maintenance

Instrument Capabilities

A major advantage of the CM350 Total Sulfur Analyzer is the use of coulometric detection. Employing the principles of Faraday's Law, the CM5017S SO₂/H₂S Analyzer automatically measures the absolute mass amount of sulfur dioxide and/or hydrogen sulfide evolved from a combusted sample. No user-calibration is required, and linear detection is available from less than 1 µg sulfur to over 10,000 µg sulfur. Using this 100% efficient coulometric process, relative standard deviations of 0.2% or better are common for standard reference materials. For smaller concentrations, an absolute deviation of approximately 1 µg S is typical.

Sample sizes can range from 0.5 mg to 10 grams with concentrations from 1ppm to 100%. Analysis times of 7-10 minutes are typical.

Data Handling

Names, weights, volumes, or areas of up to 50 samples can be entered, to be used by the CM5017S in calculating the final result. Analytical progress is digitally displayed in user-selectable units. A detailed report is printed while each sample is running that includes the final result. The results can also be stored on USB Flash Drive for further data handling.

Ordering Information

CM350 – Total Sulfur (TS) and Total Sulfite, SO₂/H₂S Analyzer

Includes: CM5017S SO₂ Coulometer, CM5380 Dual Zone Furnace, CM5382 Sample Introduction Kit, CM5330 Acidification Unit with tools and accessories for the analysis of solid and liquid samples. Must also choose either the CM5131 (10 ml), CM5132 (25ml), CM5133 (50ml) or CM5134 (100ml) Sample Introduction Kit. (P/N CM350-01 110V, 50/60Hz) (P/N CM350-02 220V, 50/60Hz).

Optional Equipment

Printer – 3" format impact printer; includes cable, power supply, paper and ribbon. (P/N CM124-078)

CM5390 Automated Boat Inlet – Automates the sample purge and introduction/withdrawal cycles of the sample combustion process. See the CM5390 Brochure for more details.