UIC INC.

CM240

Total Inorganic Carbon Analysis

By Automated Acidification and Coulometric Detection

Applications include: *Soils and sediments, Geological materials, Sludges, Sulfur, Coals, Ceramic powders, Column packing materials*

CONFORMS TO ASTM D 513

The CM240 Total Inorganic Carbon Analyzer is a complete analytical system allowing the direct measurement of total inorganic carbon in a wide variety of sample matrices and concentrations. Combining a self-contained unit for the acidification of a sample (to evolve CO_2), with a highly sensitive CO_2 detector, the CM240 easily handles solid or liquid samples with concentrations from ppm levels to 100% inorganic carbon without user calibration. UIC's analyzers are rugged, accurate and adaptable to most TIC applications. The CM240 system includes the following components pictured above:

CM5015 CO_2 Coulometer

- No user calibration
- Wide, linear dynamic range
- Readability to 0.01 ug Carbon
- User selectable display units
- 10" LCD Touch Screen
- SD Card data storage
- LIMS Compatible

CM5240 Auto-Acidification Module

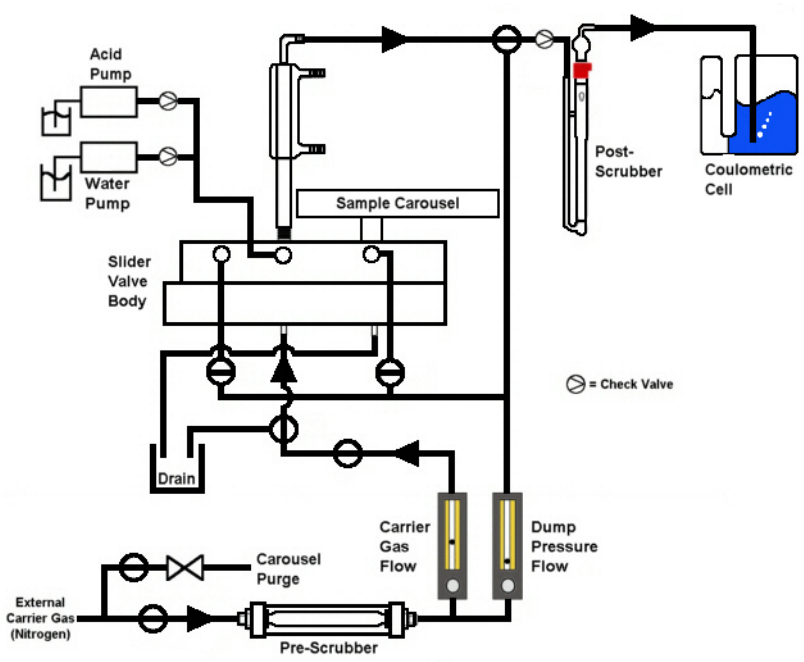
- 45 position carousel
- Low dead volume reaction chamber
- Self cleaning
- Pre-acidification scrubber for removal of CO_2 from carrier gas
- Post-acidification scrubber for removal of interferents released during sample digestion
- Controlled sample heating

Instrument Capabilities

A major advantage of the CM240 Total Inorganic Carbon Analyzer is the use of coulometric detection. Employing the principles of Faraday's Law, the CM5015 CO_2 Coulometer automatically measures the absolute mass amount of carbon dioxide evolved from sample acidification. No user-calibration is required and linear detection is available from less than 1 ug carbon to over 10,000 ug carbon. Using this 100% efficient coulometric process, relative standard deviations of 0.2% or better are common for standard material. For smaller concentrations, an absolute deviation of approximately 1 ug C is typical.

Additionally, it is possible to analyze liquids containing particulates, solids or solid/liquid slurries. Oxidation times vary with sample type and temperature although 5 to 7 minute analyses are typical.

Principles of Operation



Total Inorganic Carbon (TIC)

Samples are initially weighed into disposable Teflon® cups and loaded into a 45 position sample carousel. As the carousel rotates, each sample drops from the carousel into a small chamber where it is purged with a CO_2-free carrier gas to eliminate atmospheric carbon dioxide. Once purged, the sample moves into the acidification chamber where it is oxidized. A second stream of CO_2-free carrier gas transports the products of this reaction through a series of post-scrubbers (to remove potential interferences) and ultimately into the reaction cell within the CM5015 Coulometer. There, the resulting carbon dioxide is automatically measured using absolute coulometric titration.

Data Handling

Names, weights and sizes of up to 50 samples can be entered, to be used by the CM5015 in calculating the final result. Analytical progress is displayed on the 10" LCD touch screen in user-selectable units. Detailed analysis information is automatically saved to an on-board SD card after each sample. Data can also be transmitted through the standard serial and Ethernet ports to be captured on a personal computer or LIMS. In addition, a detailed report can be printed to the optional small format printer while each sample is running.

Ordering Information

CM240 – Automated Total Inorganic Carbon Analyzer

Includes: CM5015 CO_2 Coulometer and CM5240 Auto-Acidification Module with tools and accessories for the analysis of solid or liquid samples. (P/N CM240-01 110V, 50/60Hz) (P/N CM240-02 220V, 50/60Hz)

Optional Equipment:

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

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