

CM140 –Total Inorganic Carbon (TIC) Analyzer

By Acidification and Coulometric Detection

Applications include: Carbonates in pharmaceuticals, dissolved carbon dioxide in sea water, carbonates in geological materials, carbon dioxide in amine and hydrazine, carbonates in black liquids, carbonates in food.

CONFORMS TO ASTM D 513

The CM140 Total Carbon Analyzer is a complete analytical system allowing the direct measurements of total inorganic carbon in wide variety of sample matrices and concentrations. Combining a self-contained unit for the acidification of a sample (to evolve CO₂), with a highly sensitive CO₂ detector, the CM140 easily handles solid or liquid samples with concentration from ppm levels to 100% inorganic carbon without user calibration. UIC's analyzers are rugged, accurate and adaptable to most TIC applications.

Part Numbers

CM140-01 110V, 50/60Hz

CM140-02 220V, 50/60Hz



CM5018 CO₂ Coulometer

- No user calibration
- Wide, linear dynamic range
- Readability to 0.01 µg Carbon
- Modern Windows-Based Interface
- Storage on Hard drive of PC
- LIMS Compatible

CM5330 Acidification Unit

- 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 CO₂ from carrier gas
- Pre-acidification scrubber for removal of CO₂ from carrier gas



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Instrument Capabilities

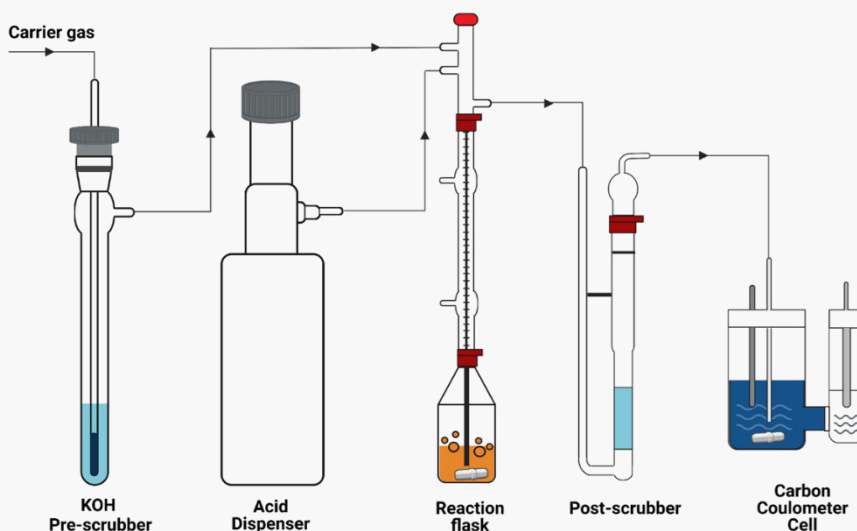
A major advantage of the CM140 Total Inorganic Carbon Analyzer is the use of coulometric detection. Employing the principles of Faraday's Law the CM5018 CO₂ Coulometer automatically measures the absolute mass amount of carbon dioxide evolved from sample acidification. No user-calibration is required, and linear detection is available from less than 1 µg carbon to over 10,000 µg carbon. Using this 100% efficient coulometric process, relative standard deviations of 0.2% or better are common for standard materials. For smaller concentration, an absolute deviation of approximately 1 µg C is typical.

Additionally, it is possible to analyze either solid or liquid samples. Sample flasks are available in 10-, 25-, 50-, and 100-ml sizes. Liquids may be syringe injected through a septum.

Reaction times vary with sample type and temperature although 5-to-7-minute analyses are typical. To quicken CO₂ evolution, sample heating and stirring capabilities are included within the CM5330 Acidification Module. Other features include the ability to: select different acids; add wetting/emulsifying agents; and modify the flow path and scrubbers to optimize a particular application.

Data Handling

Names, weights and sizes can be entered from a file or manually into the analysis screen to be used by CM5018 for calculating the final result. Analytical progress is displayed on the laptop in user-selectable units. Detailed analysis information is automatically saved to reports folder on the laptop's hard drive. Detailed, full size reports with graphs and/or a summary report with all result can be user generated. Reports can be printed to any windows printer in full color. In addition, a raw data file is created when the summary report is generated for advanced data handling.



Ordering Information

CM140 – Total Inorganic Carbon in Solids or Liquids Includes CM5018 CO₂ Coulometer and CM5330 Acidification Module with tools and accessories for analysis of solid or liquid samples. Must also choose either the CM5131 (10 ml), CM5132 (25ml), CM5133 (50ml) or CM5134 (100ml) Sample Introduction Kit. (P/N CM140-01 110V 50/60Hz) (P/N CM140-02 220V, 50/60Hz).



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