

## DETERMINATION OF CO<sub>2</sub> IN HYDRAZINE



Figure 1: CM140 Total Inorganic Carbon (TIC) Analyzer

### PRINCIPLES OF OPERATION

A hydrazine sample is acidified with phosphoric acid (H<sub>3</sub>PO<sub>4</sub>) in the reaction chamber. A carbon dioxide-free carrier gas sweeps the evolved CO<sub>2</sub> from the reaction tube through a scrubbing solution and into the Carbon Coulometer where it is automatically measured by coulometric titration.

### REAGENTS

1. Acid solution, 1:1 H<sub>3</sub>PO<sub>4</sub>.
2. Scrubbing solution, 20% AgNO<sub>3</sub> with 3% H<sub>2</sub>O<sub>2</sub> adjusted to pH 2.
3. Carrier gas scrubber, 45% KOH.
4. Coulometer cell reagents (supplied with instrument).

## PROCEDURE

1. Assemble and prepare the components for operation as described in the Instruction Manuals; stabilize and titrate the cell.
2. Determine the blank and run a standard(s) to confirm proper operation of the complete system.
3. Inject one (1) ml of sample through the septum and wash it into the reaction chamber with 10 ml of acid.
4. Press "Begin Analysis" on the CM5017 Carbon Coulometer.
5. When all CO<sub>2</sub> is evolved and titrated, the CM5017 automatically detects the endpoint, ends the analysis and prints the result to a USB Flash Drive and/or printer\*.

(\*) – Endpoint determination and result calculations are performed automatically based on user selectable settings entered into the CM5017 Carbon Coulometer.

## RESULTS

The overall accuracy of this analysis is +/-0.5% with a typical analysis time of 5-7 minutes.

## PRECAUTIONS

1. Hydrazine is **EXTREMELY CORROSIVE!!** Protective clothing and eye wear should be worn to prevent skin contact.
2. Hydrazine rapidly absorbs CO<sub>2</sub> from the atmosphere and this must be avoided during sample handling to obtain reliable results.

**For information about the instrument's capabilities, contact the UIC, Inc.**