

Application Note

Determination of CO₂ content in a carbonized brine mixture of NaHCO₃ / Na₂CO₃ / NaCl

Over the last few years, the industry highly requests the need for environmentally friendly production techniques and the reduction of CO₂ emissions.

Soda ash production is an example of a process with enormous environmental impact because of CO₂ waste.

Research and industrial laboratories are investigating modifications in the production process that will reduce CO₂ emissions.

In this application sheet, a modified FOGL Bench Calcimeter was used to measure the CO₂ volume of the liquid samples. The FOGL Bench Calcimeter is a laboratory device suitable for liquid and solid samples for the determination of the CO₂ content in percentage (%) and volume (mL) of CO₂ without losing the advantages of the FOGL Bench-top Soil Calcimeter. Continued measurements are running through the CarboSoft Software allowing the user to observe the progress of the reaction through a graph. When the user stops the measurements, the final results appear on the screen and can be saved on the computer.

FOGL[®] Bench-top Soil Calcimeter™



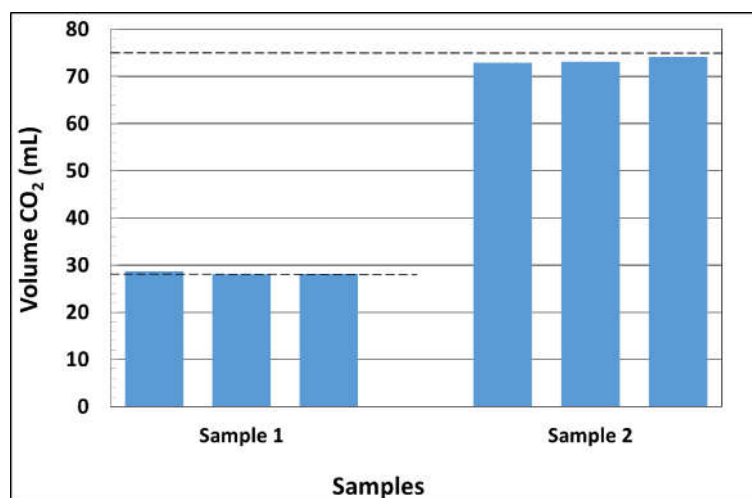
The FOGL Bench-top Soil Calcimeter with patented automatic temperature compensation offers dramatically improved levels of performance, productivity, reliability, ease of use, and flexibility. FOGL bench-top calcimeter provides the best accuracy of total carbonate content measurements. High quality, easy handling, and featuring data export capabilities.

Two samples of carbonized brine and mixture of NaHCO₃ / Na₂CO₃ / NaCl were analyzed for their CO₂ content.

- **1 mL** of the first sample with a theoretical CO₂ volume of 28 mL and
- **5 mL** of the second sample with a theoretical CO₂ volume of 75 mL were used to determine the CO₂ content using a modified FOGL Bench Calcimeter.

The samples were stirred to secure their homogeneity and samples were taken from the supernatant liquid.

The CO₂ volume measured with the modified FOGL Calcimeter is presented in Figure 1.



Figures 1. CO₂ volume of the two Liquid Samples of Carbonized brine and mixture of NaHCO₃ / Na₂CO₃ / NaCl measured with the modified FOGL Calcimeter