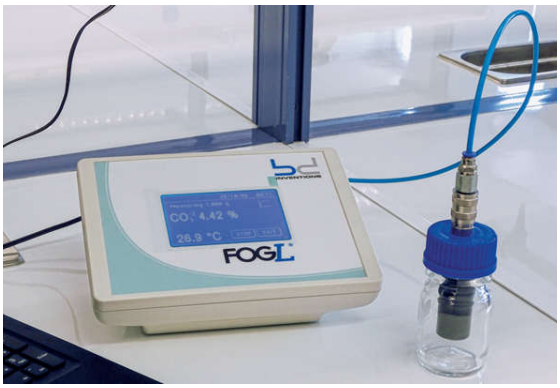
Application Note
Determination of CO_2 content in a mixture of Lime products

Lime products have multiple applications like the construction industry, the sewage treatment, the soil treatment etc. The determination of the CO_2 content of the produced lime mixture is important for the characterization of the wastes. Additionally, the application of the lime mixture depends on the % CO_2 in it.

In this application sheet, the FOGL Bench Calcimeter was used to measure the CO2 volume of the liquid samples. The FOGL Bench Calcimeter is a laboratory device suitable for soil samples for the determination of the CO_2 content in percentage (%) and volume (mL) of CO_2. 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.

0,5 g and **1 g** of the lime mixture sample were used to determine the % CO_2 of the sample.

It was noticed that the reaction between the lime mixture and the hydrochloric acid was highly exothermic showing a false increase of the CO_2 content because of the pressure created from the temperature increase. Thus, temperature stabilization was required to receive the final result.

When the reaction bottle immersed in a water tank, the temperature was stabilised faster and the results are more repeatable.

Figures 1 and 2, show the change of the % CO_2 as a function of time of 0,5 g and 1 g samples when no cooling was applied outside the reaction bottle (top figure) and when the reaction bottle was immersed inside a water tank with room temperature water (bottom figure).

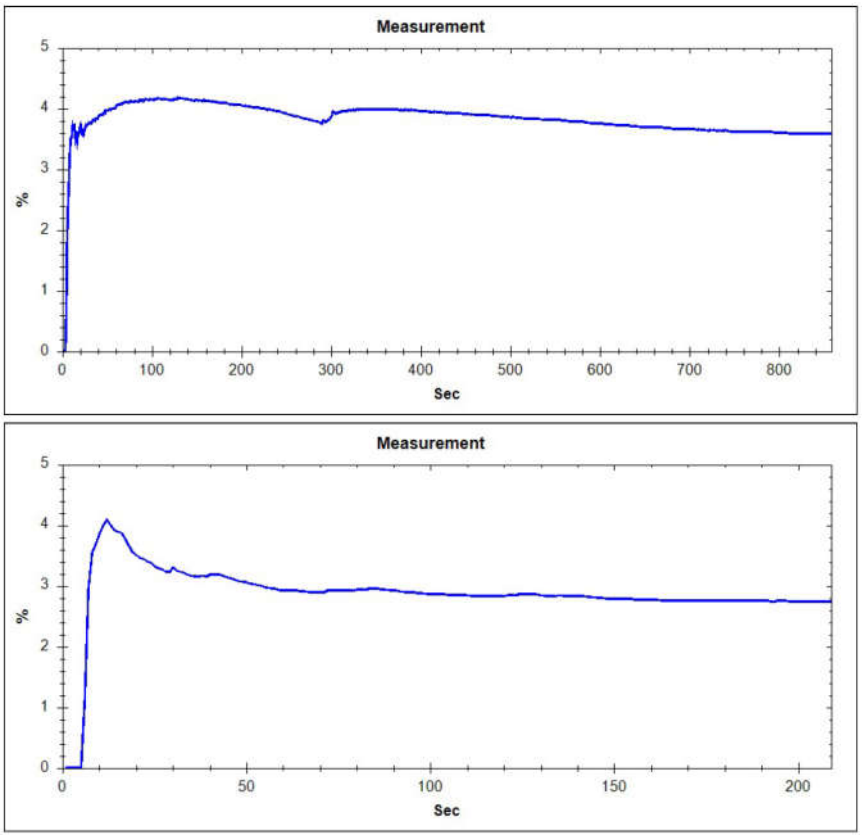


Figure 1. Progress of the lime mixture sample reaction with HCl.
Sample weight: 1 g
(top) No cooling of the reaction bottle
(bottom) Cooling of the reaction bottle to room temperature

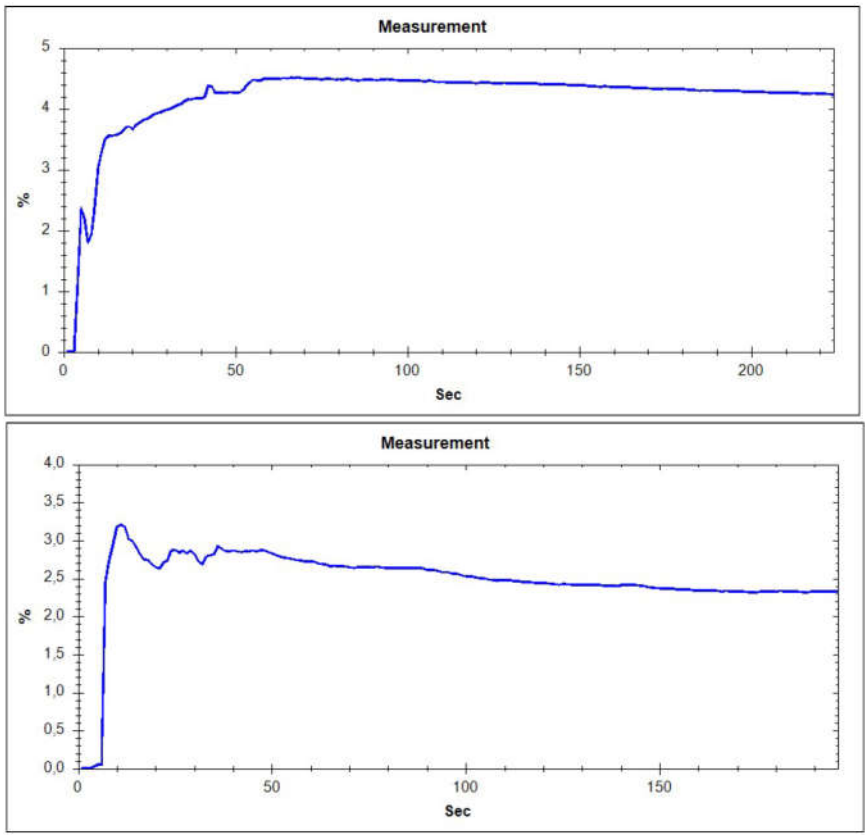


Figure 2. Progress of the lime mixture sample reaction with HCl.
Sample weight: 0,5 g
(top) No cooling of the reaction bottle
(bottom) Cooling of the reaction bottle to room temperature