

Analysis of organic and inorganic carbon species in geological samples

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Different species of carbon compounds (carbonates, graphite or organic carbon) may occur in geological samples, and several techniques can be used for their analyses. In this work a carbon and water multiphase determinator (LECO RC412) was employed for carbon speciation in rocks, sediments and soils. This equipment consists of a resistance furnace that heats the sample up to 1200 °C, generating water and carbon dioxide that are quantified by infrared cells.

Various carbonates were analyzed in natural samples and in synthetic mixtures (CaCO_3 / MgCO_3 / SiO_2). Results using nitrogen and oxygen as flow gas show that some classes of organic carbon compounds (such as aromatic hydrocarbons) may be determined by adjusting the temperature program and making use of water data. Organic carbon was also analyzed by an acid extraction method and results were shown to be consistent when compared with the technique presented.