LECO SC632 ANALYZER

LECO boat crucible as an aid to analysis of Total Organic Carbon (TOC) content in rock samples

Doaa A. Mousa | Exploration Department / Egyptian Petroleum Research Institute (EPRI), 1 Ahmed El Zomor St. Nasr City, Cairo, 11727, Egypt
Shereen A. Naseef | Exploration Department / Egyptian Petroleum Research Institute (EPRI), 1 Ahmed El Zomor St. Nasr City, Cairo, 11727, Egypt
Amr M. Shehata | Exploration Department / Egyptian Petroleum Research Institute (EPRI), 1 Ahmed El Zomor St. Nasr City, Cairo, 11727, Egypt

Introduction

The Total Organic Carbon (TOC wt%) is a very important parameter, it plays an essential role in the evaluation of source rock generating potential of petroleum in the sedimentary rock. In Egyptian Petroleum Research Institute, we use the LECO SC632 analyzer that is best in this application and recommended by most of the workers. In addition to TOC, the instrument measures the Total Sulfur (TS) and Total Carbon (TC). The results are precise every-time after an easy calibration step. The machine is made for heavy duty work and has a nice easy to handle digital interface.

Using the LECO Crucible 528-203-250 BOAT CRUCIBLE ZIR and the application note by LECO for Sulfur and Carbon in Cement, Fly Ash, Limestone, Soil and Ore, in determining the Total Organic Carbon (TOC) content it is very important in our laboratory work.

Method

The method is simply summarized as follows:

1) The fine ground dried sample is weighted according to the application recommended weight in clean boat crucible.

2) The sample is treated with 10 N HCl acid to remove any inorganic carbon content.

3) The excess of HCl seeps through the pores of the boat crucible.

4) The sample with the boat is washed with distilled water to remove any access of HCl acid then dried in the oven at 105°C.

5) The samples are mixed with com cat as recommended in the application note, then analyzed in the LECO SC632 for complete combustion.

6) The TOC content is determined.

7) Another batch of the samples is treated in glass watch with the same procedures and the residue is totally moved to clean crucible after drying, mixed with com cat, then analyzed in the LECO SC632 for complete combustion.

The experiment is applied here on five (5) rock samples with different composition and different TOC content. The results are very similar as shown in figs. (1-5). Each figure has two curves, each one represents one method. The first is applied by using the LECO crucible (black curve), the second represents the second method in glass watch (red curve).