

高樹基, 張豐穎, 劉康克 (1990) LECO WR-112 全碳分析儀之使用與維護。中央研究院地球科學研究所報告 IES-CR-729。

張豐穎 (1991) 臺灣北部河流及近海沉積物總有機碳量的初步研究。國立臺灣大學海洋研究所碩士論文。

ANALYSIS OF ORGANIC AND CARBONATE CARBON IN SEDIMENTS

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ABSTRACT

Four methods were tested for determination of organic carbon in marine and riverine sediments. All methods discriminate organic and inorganic carbon by acidification and utilize an automated carbon analyzer (LECO-WR112) for carbon determination. Precision for total carbon analysis was $\pm 0.006\%C$ (using a sample size of 0.1 g) and accuracy was better than $\pm 0.036\%C$. The technique using fuming HCl acidification is the most precise method with a precision of $\pm 0.01\%C$. Oven-drying after 0.5N HCl treatment resulted in measured values similar to the previous technique, but the precision ($\pm 0.025\%C$) was not as good. Analysis of organic carbon after acid leaching causes loss of acid-soluble organic carbon during carbonate dissolution, whereas additional filtration after neutralization of the filtrate causes positive error. Therefore the fuming HCl acidification is the best way to remove carbonates from sediments. Oven-drying after acid treatment is a faster and acceptable procedure. The widely used procedure for determination of total inorganic carbon (TIC) content by heating sample at $500^{\circ}C$ to remove organic carbon may cause serious underestimation. TIC may be determined indirectly by subtracting TOC from total carbon content.