Organic geochemical analyses using laser pyrolysis

Hideyoshi Yoshioka [1], Ryoshi Ishiwatari [2]

[1] Dep. Chem., Tokyo Metropolitan Univ, [2] Dept. Chem., Tokyo Metropol. Univ

We are developing an instrument using laser pyrolysis for analyzing organic geochemical sediments. In this study, we examined Green River Shale (Eocene), by heating powdered sample with CO2 (infrared) laser and trapping the products with hexane/dichloromethane (7/1, v/v). The solvent was distilled off and the pyrolysis products were analyzed by GC and GC/MS. Main products were homologous series of n-alkanes and n-alk-1-enes (C9 - C32), phytane, pristane, prit-1-ene, and other shorter branched alkanes and alkenes. Alkylbenzenes, hopanoids, and steroids were also detected. We characterized the laser pyrolysis products and discuss the availability of method of laser pyrolysis.