

**GAS CHROMATOGRAPHIC ISOLATION TECHNIQUE FOR  
COMPOUND-SPECIFIC RADIOCARBON ANALYSIS**

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We present here a gas chromatographic isolation technique for the compound-specific radiocarbon analysis of biomarkers from the marine sediments. The biomarkers of fatty acids, hydrocarbon and sterols were isolated with enough amount for radiocarbon analysis using a preparative capillary gas chromatograph (PCGC) system. The PCGC systems used here is composed of an HP 6890 GC with FID, a cooled injection system (CIS, Gerstel, Germany), a zero-dead-volume effluent splitter, and a cryogenic preparative collection device (PFC, Gerstel). For AMS analysis, we need to separate and recover sufficient quantity of target individual compounds ( $>50 \mu\text{gC}$ ). Yields of target compounds from  $\text{C}_{14}$  n-alkanes to  $\text{C}_{40}$  to  $\text{C}_{30}$  n-alkanes and approximately that of 80% for higher molecular weights compounds more than  $\text{C}_{30}$  n-alkanes.

Compound specific radiocarbon analysis of organic compounds, as well as compound-specific stable isotope analysis, provide valuable information on the origins and carbon cycling in marine system. Above PCGC conditions, we applied compound-specific radiocarbon analysis to the marine sediments from western north Pacific, which showed the possibility of a useful chronology tool for estimating the age of sediment using organic matter in paleoceanographic study, in the area where enough amounts of planktonic foraminifera for radiocarbon analysis by accelerator mass spectrometry (AMS) are difficult to obtain due to dissolution of calcium carbonate.