Iso-Analytical Limited

Report of Analysis

IA-R022 – ^{13}C and ^{18}O Calcium Carbonate Laboratory Standard

This laboratory standard is intended to provide a sample of known isotope composition with $^{13}C/^{12}C$ and $^{18}O/^{16}O$ isotope ratios stated in parts per thousand difference (‰) from the V-PDB (Pee Dee Belemnite) isotope ratio standard. This laboratory standard is not certified, but is provided to allow routine checking of the overall quality of measurements performed by continuous-flow isotope ratio mass spectrometry, and may be used as part of a quality control program. It is not intended for use as a substitute for calibration materials or inter-comparison materials distributed by NIST or IAEA.

Analysis

The $^{13}C/^{12}C$ and $^{18}O/^{16}O$ isotope ratios of the laboratory standard were measured by acid digestion continuous-flow isotope ratio mass spectrometry using NBS-19 (limestone) as the calibration material. The $^{13}C/^{12}C$ and $^{18}O/^{16}O$ isotope ratios in the laboratory standard were measured five times on three separate occasions.

Isotope Abundance

The laboratory standard IA-R022 is compared to V-PDB for the $^{13}C/^{12}C$ and $^{18}O/^{16}O$ isotope ratios. The isotope composition of the laboratory standard in ‰ relative to V-PDB is:

Laboratory Standard	$\delta^{13}C_{V\text{-}PDB}$ (‰) $\delta_m \pm \sigma_1$	$\delta^{18}O_{V\text{-}PDB}$ (‰) $\delta_m \pm \sigma_1$
IA-R022	-28.63 ± 0.09	-22.69 ± 0.11

Note: $\delta_m = \sum_{i=1}^{n} \delta_i/n$; $\sigma_1 = \sqrt{\sum_{i=1}^{n} (\delta_m - \delta_i)^2/(n-1)}$; n = 15 for ^{13}C and n = 14 for ^{18}O

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