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Performance and inter-comparison tests of the MICADAS at the radiocarbon laboratory of Henan University, China

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1. Introduction Radiocarbon Laboratory of Henan University was primitively established in 2017, and introduced a compact accelerator mass spectrometer (AMS) –a 200 KV mini carbon dating system (MI-CADAS) in 2023, which had greatly improved the testing capacity of the laboratory. Here we present the performance of MICADAS. The laboratory can accurately measure the weight of the sample through the microbalance. Through the elemental analyzer (EA) and the carbonate treatment system (CHS), the organic and inorganic carbon samples can be burned at high temperature or dissolved by phosphoric acid to prepare carbon dioxide. Then it enters the fully automatic graphyization system (AGE-3) to reduce carbon dioxide into graphite with hydrogen under the catalysis of iron powder (or directly for gas measurement), and then makes a solid sample target through the pneumatic pressure device (PSP), and then puts it into the target disk for sample measurement. The test results of IAEA-C7、IAEA-C8 and OII show high accuracy and precision, and stability of the MICADAS. The mean pMC value for PHA was 0.18±0.07, corresponding to around 52,000 years, with a low background.

Student Submission

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