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## Performance Assessment of Graphitization Process at AGE-3 for 14C-AMS Analysis in IHEG

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Abstract: To overcome the disadvantages of manual purification system during AMS-14C measurement, including inefficiency, unstable quality of graphite, and interference from modern carbon. CAGS-IHEG (Institute of Hydrogeology and Environmental Geology, Chinese Academy of Geological Sciences) introduced AGE-3 to improve the performance of small carbon graphite, leading to the rapid production of high-quality carbon samples. By changing the reaction temperature and H2/CO2 ratio, the optimum conditions for prompt graphitization reaction have been determined. Corrections for isotopic fractionation and increased modern C background are made by measuring samples in relation to standards of similar mass and a blank sample. In comparison to a manual purification system, AGE-3 results in improvements in parameter visualization and the precise synthesis of graphite. The enhanced technique for graphitization was specifically developed to achieve optimal beam currents of 14C in IHEG 1 MV AMS measurement, aiming to address issues related to inefficiency and impurities in the processing of soil and sediment samples.

## **Student Submission**

No

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