

## **STABLE CARBON ISOTOPE RATIO MEASUREMENTS IN SOILS BY LASER COMBUSTION**

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Stable carbon isotope ratio measurements on soils and their component constituents are important in understanding carbon sequestration and turnover, and in elucidating processes responsible for carbon cycling. At the macro scale, physical separation of selected constituents followed by conventional closed-tube combustion or continuous flow isotope ratio mass spectrometry offers a perfectly acceptable way forward. At the micro scale, specialised in situ techniques offering very high spatial resolution (eg SIMS, NanoSIMS) are attractive, but of limited availability and with some compromise of precision. Between these two, laser combustion and dual inlet isotope ratio mass spectrometry offers a compromise of moderate spatial resolution (typically a few hundred microns), acceptable precision (a few tenths of a per mil) and more general availability. The technique has proven useful in pulsed isotope label experiments, but a current major limitation for natural abundance work is uncertainty arising from combustion of resin used to impregnate soil sections.