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A novel dual inlet large radius IRMS for isotopologue measurement

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The challenges with the measurement of the isotopologues of carbon dioxide using IRMS are well documented. In particular, achieving the required measurement precision for the heavier isotopologues (m/z 48 and 49) has proved difficult.

Measurement precision can be improved by using a much larger radius IRMS instrument. Several such instrument are commercially available, although they can be expensive to buy and difficult to operate.

Sercon and Isotopx have co-developed a dual inlet large radius IRMS that is based on the ion optical configuration of the Isotopx Phoenix. This offers very wide flat top peaks and excellent stability, as well as being very easy to use.

The proven, automated Sercon dual inlet system ensures low ppm precision for most of the CO2 isotopologues. Baselines are clean, and the Isotopx ATONA Faraday system offers ultra-low background noise coupled with excellent gain stability. ATONA also allows extremely large beam sizes where there is sufficient sample.

We present isotope ratio data for CO2 standards and samples, highlighting the analytical possibilities of this new platform.