CM-CRDS

Unique Combustion Module-Cavity Ring-Down Spectroscopy system for Bulk Stable Isotopes.

The CM-CRDS instrument is Picarro's fully-integrated solution for bulk stable isotope analysis (BSIA) using ^{13}C. It can be deployed in a lab or in a field station and offers unprecedented performance, ease-of-use and low cost of ownership to scientists who are currently challenged by the complexity and price of IRMS.

CM-CRDS is uniquely positioned to leverage Picarro's outstanding Isotopic CO_2 Cavity Ring-Down Spectroscopy (CRDS) technology into a plethora of (BSIA) applications, that wouldn't otherwise be possible and expand the use of stable isotope techniques into new scientific applications and research initiatives.

The CO_2 generated by the combustion process is fed via the Liaison interface into the Isotopic CO_2 analyzer. Liaison manages several processes in parallel, such as feeding one sample into the CRDS, while collecting the CO_2 from a second sample, for maximum sample throughput.

Even though isotope ratio measurement with CM-CRDS doesn't require the pulsing of a CO_2 reference gas of known isotope ratio for each sample analysis (unlike IRMS), CM-CRDS allows the admission of a reference gas at the beginning of a sample sequence in order to offer researchers transitioning from IRMS more confidence in their analyses.

CM-CRDS is software-controlled via various utilities accessible through desktop icons installed on the G1101-i analyzer. Users can connect remotely and control the instrument through a standard Remote Desktop connection or with similar remote login software.

Specified precision is guaranteed by running a series of 10 pulses of CO_2 standard gas at 3000ppm in N_2 and with 6 combusted solid samples of USGS40 (L-glutamic acid).

CM-CRDS Features

- **High-precision**
- **Fully-automated**
- **Use in the lab or field station**
- **Far cheaper than IRMS**

Targeted Performance	
Gas species	**Precision**
$\delta^{13}C$	< 0.4 ‰ (0.2 - 0.3 ‰ typical)

System Requirements	
Sample Size	25ug of Carbon – 1mg of Carbon
Sample Throughput	ca. 10 min sample-to-sample
Gases Used	N_2 carrier gas (UHP grade) / O_2 (UHP or research grade), CO_2 Standard @ 3000ppmv in N_2
Gas Flow Rate	< 100ml/min of Nitrogen at 760 Torr
Attachments	Pneumatic Autosampler w/ 50 position carousel (147 position optional)
Installation	Benchtop
Weight / Dimensions	160 lbs / 38" x 23" x 23" / 38" x 29" x 23" with autosampler
Power Requirements	90-120VAC, 50/60 Hz, 220 VAC, 50Hz
Gas Requirement	N_2 as carrier gas / CO_2 Standard @ 3000ppmv in N_2

 480 Oakmead Parkway, Sunnyvale, CA 94085 · T 408.962.3900 · E info@picarro.com · W www.picarro.com