



## iTOC-CRDS Isotopic Carbon Analyzer

The iTOC-CRDS Isotopic Carbon Analyzer is the first commercial, integrated solution combining the stability and simplicity of WS-CRDS (Picarro) with proven TOC technology (OI Analytical) to measure carbon stable isotope ratios ( $\delta^{13}\text{C}$ ) as well as total organic carbon (TOC). This complete solution is the most straightforward measurement suite available, with the lowest cost of ownership of any other solution currently available, such as IRMS. This instrument supports the analysis of aqueous and solid samples.

### iTOC-CRDS Features

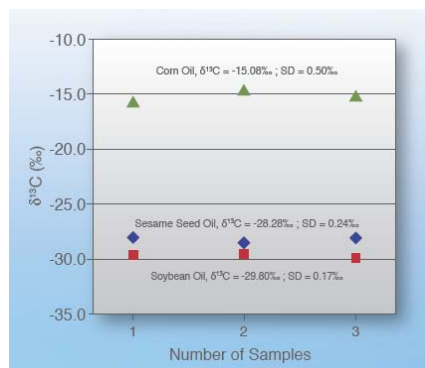
- Fully integrated & compact
- Easy-to-use & flexible
- Precise measurement of  $\delta^{13}\text{C}$  and TIC/TOC

Applications for this instrument include origin of food (appellation of origin) and adulteration analyses for such products as wine, fruit juice, edible oils, seeds, nuts, fruits, chocolate, and dairy products. In addition, this system serves environmental science applications such as carbon isotope distribution in soils, sediments, and plant materials as well as limnology, hydrobiology, marine and freshwater ecosystem studies.

Organic compounds in aqueous samples can be oxidized in the reaction chamber of the TOC Analyzer using heated sodium persulfate ( $\text{Na}_2\text{S}_2\text{O}_8$ ). Alternatively, solid samples can be placed in a quartz crucible and oxidized by high temperature combustion in the Solids Module. The  $\text{CO}_2$  produced by either method is introduced into the Picarro isotopic  $\text{CO}_2$  analyzer for measurement of the  $^{13}\text{C}/^{12}\text{C}$  isotope ratio. The instrument can be configured with or without an autosampler that can be used with aqueous samples.

Guaranteed Performance Specifications	
Isotope Ratio	Precision
$^{13}\text{C} / ^{12}\text{C}$ ( $\delta^{13}\text{C}$ )	$\leq 0.5 \text{‰}^*$

\* Method: Precision based on the combustion of 5 injections of 20  $\mu\text{l}$  of a solution of 50,000 ppm urea (Sigma-Aldrich U1250) dissolved in deionized  $\text{H}_2\text{O}$ . Performance for other samples will be methods dependent and typical data may not conform to this specification.



The Picarro/OI iTOC-CRDS product provides excellent precision and accuracy for  $\delta^{13}\text{C}$  measurements from solids and liquids. Edible oils derived from  $\text{C}_3$  and  $\text{C}_4$  plants can be distinguished by their isotopic carbon signature using a fast, easy combustion process