

# Water Sciences Laboratory

## Analyte/Protocol Price List

### 2022



**Nebraska  
Water Center**  
Daugherty Water for Food Global Institute

## IRMS :: Water

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Protocol	Analyte	Reporting Limit	Protocol Cost	NU Cost (20% discount)
<p><b><math>\delta^{18}\text{O}</math> of water</b></p> <p>Protocol ID: 12_01_01_01</p> <div style="border: 3px double black; padding: 2px;"> <p>Minimum elemental mass required for analysis = 1,000 mg</p> </div> <p><b>Sample Container:</b> 125 mL polyethylene bottle  <b>Sample Size:</b> 20 mL  <b>Preservation:</b> Cool, &lt; 6°C  <b>Holding Time:</b> 60 Days  <b>Estimated Turnaround Time:</b> 6-8 Weeks</p> <p><b>References:</b>  Hsieh, Jean C. C. Savin, Samuel M. Kelly, Eugene F. Chadwick, Oliver A. (1998), "Measurement of soil-water <math>\delta^{18}\text{O}</math> values by direct equilibration with <math>\text{CO}_2</math>", <i>Geoderma</i> <b>82</b>, 255-268.</p> <p>Epstein, S. and Mayeda, T. (1953), "Variation of O18 content of waters from natural sources", <i>Geochimica et Cosmochimica Acta</i> <b>4</b>, 213-224.</p>	$\delta^{18}\text{O}\text{-H}_2\text{O\_SMOW}$		\$28.90	\$23.12
<p><b><math>\delta^{13}\text{C}</math> in total organic carbon</b></p> <p>Protocol ID: 12_01_01_11</p> <div style="border: 3px double black; padding: 2px;"> <p>Minimum elemental mass required for analysis = 0.05 mg</p> </div> <p><b>Sample Container:</b> 12 mL Exetainer  <b>Sample Size:</b> 100 mL  <b>Preservation:</b> Cool, &lt; 6°C  <b>Holding Time:</b> 60 Days  <b>Estimated Turnaround Time:</b> 6-8 Weeks</p> <p><b>Reference:</b></p>	$\delta^{13}\text{C}$ (‰)		\$17.30	\$13.84

Turnaround times are subject to existing sample queues Reporting Limits are subject to verification

Protocol	Analyte	Reporting Limit	Protocol Cost	NU Cost (20% discount)
<p>Lang, Susan Q.; Bernasconi, Stefano M.; Fruh-Green, Gretchen L. (2012), "Stable isotope analysis of organic carbon in samll samples and DOM using gasbench preparation device", <i>Rapid Communications in mass spectrometry</i> <b>26</b>, 9-16.</p>				
<p><b><math>\delta^{18}O</math> in PO4</b>  <b>Protocol ID: 12_03_01_08</b></p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <p>Minimum elemental mass required for analysis = 0.2 mg-P</p> </div> <p><b>Sample Container:</b> 1 L polyethylene bottle  <b>Sample Size:</b> 1000 mL  <b>Preservation:</b> Cool, &lt; 6°C  <b>Holding Time:</b> 60 Days  <b>Estimated Turnaround Time:</b> 6-8 Weeks</p> <p><b>Reference:</b>  McLaughlin, K.; Silva, S.; Kendall, C.; Stuart-Williams, H.; Paytan, A. (2004), "A Precise Method for the Analysis of 18O of Dissolved Inorganic Phosphate in Seawater", <i>Limnology and Oceanography</i>Y: <i>Methods</i> <b>2</b>, 202-212.</p>	<p><math>\delta^{18}O</math> in PO4</p>		<p><b>\$98.20</b></p>	<p>\$78.56</p>
<p><b>Deuterium in water</b>  <b>Protocol ID: 12_04_01_02</b></p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <p>Minimum elemental mass required for analysis = 1,000 mg</p> </div> <p><b>Sample Container:</b> 125 mL polyethylene bottle  <b>Sample Size:</b> 20 mL  <b>Preservation:</b> Cool, &lt; 6°C  <b>Holding Time:</b> 60 Days  <b>Estimated Turnaround Time:</b> 6-8 Weeks</p> <p><b>Reference:</b>  J. Morrison T. Brockwell T. Merren F. Fourel A. M. Phillips (2001), "On-Line High-Precision Stable Hydrogen Isotopic Analyses on Nanoliter Water Samples", <i>Analytical Chemistry</i> <b>73</b>, 3570-3575.</p>	<p><math>\delta D-H_2O\_SMOW</math></p>		<p><b>\$28.90</b></p>	<p>\$23.12</p>

Protocol	Analyte	Reporting Limit	Protocol Cost	NU Cost (20% discount)
<p><b><math>\delta^{18}\text{O}</math> and <math>\delta^{15}\text{N}</math> in <math>\text{NO}_3^-</math> in water by azide reduction</b></p> <p>Protocol ID: 12_06_01_07</p> <div style="border: 1px solid black; padding: 2px; width: fit-content;"> <p>Minimum elemental mass required for analysis = 0.00005 mg-N</p> </div> <p><b>Sample Container:</b> 125 mL polyethylene bottle  <b>Sample Size:</b> 125 mL  <b>Preservation:</b> Frozen  <b>Holding Time:</b> 60 Days  <b>Estimated Turnaround Time:</b> 6-8 Weeks</p> <p><b>Reference:</b>  McIlvin, Matthew R.; Altabet, Mark A. (2005), "Chemical conversion of nitrate and nitrite to nitrous oxide for nitrogen and oxygen isotopic analysis in freshwater and seawater", <i>Anal. Chem.</i> <b>77</b>, 5589-5595.</p>	<p><math>\delta^{15}\text{N}</math>  <math>\delta^{18}\text{O}</math></p>		<p>\$115.50</p>	<p>\$92.40</p>