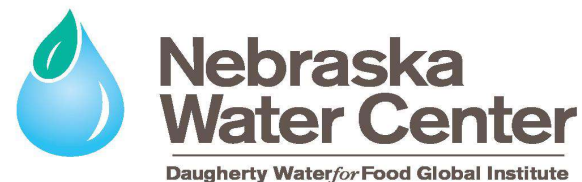


Water Sciences Laboratory

Analyte/Protocol Price List

2024



IRMS :: Solids

Nebraska Water Center, a part of the
Robert B. Daugherty Water for Food Global Institute at the University of Nebraska
 e:dsnow1.unl.edu | p: 1 402.472.7539 | c: 1 402.304.3748

Protocol	Analyte	Reporting Limit	Protocol Cost	NU Cost (20% discount)
<p>$\delta^{18}O$ in Extracted Water (Solids)</p> <p>Protocol ID: 12_01_02_01</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>Sample Container: 125 mL wide mouth amber glass bottle Sample Size: 50 gm Preservation: Cool, < 6°C Holding Time: 60 Days Estimated Turnaround Time: 6-8 Weeks</p> <p>Reference: Wassenaar, L. I.; Koehler, G. (1999), "An On-Line Technique for the Determination of the $\delta^{18}O$ and $\delta^{17}O$ of Gaseous and Dissolved Oxygen", <i>Anal. Chem.</i> 71, 4965-4968.</p>	$\delta^{18}O$ (‰)		\$28.90	\$23.12
<p>$\delta^{15}N$ in Solids</p> <p>Protocol ID: 12_02_02_04</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <p>Minimum elemental mass required for analysis</p> </div> <p>Sample Container: 125 mL polyethylene bottle Sample Size: 20 mL Preservation: Frozen Holding Time: 60 Days Estimated Turnaround Time: 6-8 Weeks</p> <p>Reference: Meier-Augenstein, Wolfram (2004), "GC and IRMS Technology for ^{13}C and ^{15}N Analysis on Organic Compounds and Related Gases", <i>Handbook of stable isotope analytical techniques</i> 1, 153.</p>	$\delta^{15}N$ (‰)		\$23.10	\$18.48

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>$\delta^{13}\text{C}$ (Organic) Isotopes in Soil</p> <p>Protocol ID: 12_02_02_11</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <p>Minimum elemental mass required for analysis = 0.05 mg-C</p> </div> <p>Sample Container: 125 mL polyethylene bottle Sample Size: 1 g Preservation: Frozen Holding Time: 60 Days Estimated Turnaround Time: 6-8 Weeks</p> <p>Reference: Meier-Augenstein, Wolfram (2004), "GC and IRMS Technology for ^{13}C and ^{15}N Analysis on Organic Compounds and Related Gases", <i>Handbook of stable isotope analytical techniques</i> 1, 153.</p>	<p>$\delta^{13}\text{C}$ (‰)</p>		<p>\$23.10</p>	<p>\$18.48</p>
<p>$\delta^{13}\text{C}$ Isotopes in Organic Solids</p> <p>Protocol ID: 12_02_08_03</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <p>Minimum elemental mass required for analysis = 0.05 mg-C</p> </div> <p>Sample Container: 125 mL polyethylene bottle Sample Size: 10 grams Preservation: Frozen Holding Time: 60 Days Estimated Turnaround Time: 6-8 Weeks</p> <p>Reference: Meier-Augenstein, Wolfram (2004), "GC and IRMS Technology for ^{13}C and ^{15}N Analysis on Organic Compounds and Related Gases", <i>Handbook of stable isotope analytical techniques</i> 1, 153.</p>	<p>$\delta^{13}\text{C}$ (‰)</p>		<p>\$16.80</p>	<p>\$13.44</p>
<p>$\delta^{15}\text{N}$ Isotopes in Organic Solids</p> <p>Protocol ID: 12_02_08_04</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <p>Minimum elemental mass required for analysis</p> </div> <p>Sample Container: 125 mL polyethylene bottle Sample Size: 20 mL Preservation: Frozen Holding Time: 60 Days</p>	<p>$\delta^{15}\text{N}$ (‰)</p>		<p>\$23.10</p>	<p>\$18.48</p>

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>Estimated Turnaround Time: 6-8 Weeks</p> <p>Reference: Meier-Augenstein, Wolfram (2004), "GC and IRMS Technology for ¹³C and ¹⁵N Analysis on Organic Compounds and Related Gases", <i>Handbook of stable isotope analytical techniques 1</i>, 153.</p>				
<p>δ¹⁵N Isotopes in Organic Solids (Enriched) Protocol ID: 12_02_08_06</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;">Minimum elemental mass required for analysis</div> <p>Sample Container: 125 mL polyethylene bottle Sample Size: 20 mL Preservation: Frozen Holding Time: 60 Days Estimated Turnaround Time: 6-8 Weeks</p> <p>Reference: Meier-Augenstein, Wolfram (2004), "GC and IRMS Technology for ¹³C and ¹⁵N Analysis on Organic Compounds and Related Gases", <i>Handbook of stable isotope analytical techniques 1</i>, 153.</p>	<p>δ¹⁵N (‰)</p>		<p>\$25.00</p>	<p>\$20.00</p>
<p>δ¹⁸O in Phosphate in Soils Protocol ID: 12_03_02_08</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;">Minimum elemental mass required for analysis = 0.2 mg</div> <p>Sample Container: Quart Size (or smaller) resealable plastic bag Sample Size: 50 grams Preservation: Frozen Holding Time: 60 Days Estimated Turnaround Time: 8-12 Weeks</p> <p>Reference: 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>: <i>Methods 2</i>, 202-212.</p>	<p>δ¹⁸O in PO₄ 29/28 Peak Height PO₄ Concentration</p>		<p>\$100.00</p>	<p>\$80.00</p>

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>Deuterium in Extracted Water from Soils Protocol ID: 12_04_02_02</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>Sample Container: 125 mL polyethylene bottle Sample Size: 20 mL Preservation: Cool, < 6°C Holding Time: 180 Days Estimated Turnaround Time: 6-8 Weeks</p> <p>Reference: 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> 73, 3570-3575.</p>	2H		\$28.90	\$23.12
<p>δ13C and δ18O in Carbonates Protocol ID: 12_05_02_12</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <p>Minimum elemental mass required for analysis</p> </div> <p>Sample Container: 125 mL wide mouth amber glass bottle Sample Size: 10 gm Preservation: Frozen Holding Time: 60 Days Estimated Turnaround Time: 6-8 Weeks</p> <p>Reference: McCrea, J. M. (1950), "On the isotopic chemistry of carbonates and a paleotemperature scale.", <i>The Journal of Chemical Physics</i> 18(6), 849-857.</p>	δ13C (‰) δ18O (‰)		\$40.40	\$32.32
<p>δ18O and δ15N in Nitrate using Titanium Trichloride Reduction (Solids) Protocol ID: 12_06_02_08</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <p>Minimum elemental mass required for analysis</p> </div> <p>Sample Container: 125 mL polyethylene bottle Sample Size: 50 gm Preservation: Frozen</p>	δ15N δ18O		\$100.00	\$80.00

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>Holding Time: 60 Days Estimated Turnaround Time: 6-8 Weeks</p> <p>Reference: Altabet M. A.; Wassenaar L. I.; Douence C.; Roy R. (2019), "A Ti(III) reduction method for one-step conversion of seawater and freshwater nitrate into N₂O for stable isotopic analysis of ¹⁵N/¹⁴N, ¹⁸O/¹⁶O and ¹⁷O/¹⁶O", <i>Rapid Commun. Mass Spectrom.</i> 33, 1227-1239.</p>				
<p>δ¹³C Compound-Specific Isotopic Analysis (CISA) of Fatty Acids Protocol ID: 12_08_01_02</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <p>Minimum elemental mass required for analysis</p> </div> <p>Sample Container: 125 mL wide mouth amber glass bottle Sample Size: 5 gm Preservation: Frozen Holding Time: 60 Days Estimated Turnaround Time: 6-8 Weeks</p>	<p>Arachidic Acid Behenic Acid Erucic Acid Lignoceric Acid Linoleic Acid Linolenic Acid Myristic Acid Oleic Acid Palmitic Acid Stearic Acid</p>		<p>\$200.00</p>	<p>\$160.00</p>