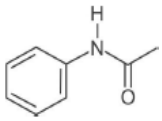
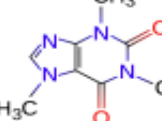
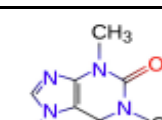
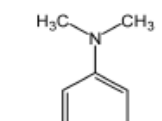
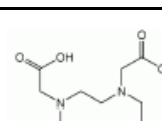
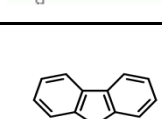
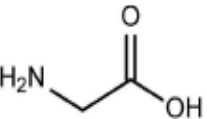
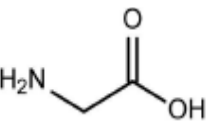

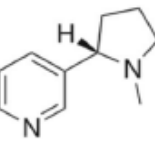
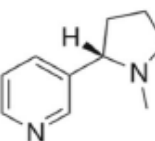
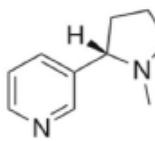
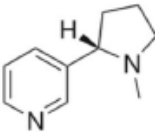
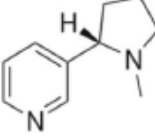
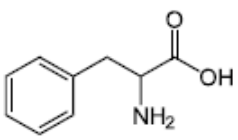
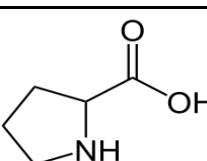
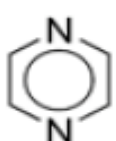
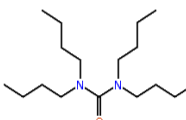
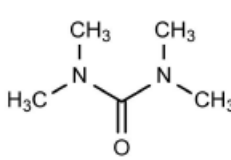
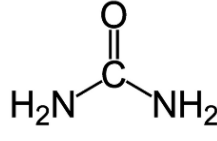
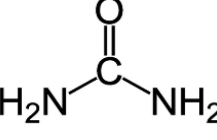
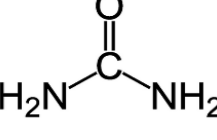
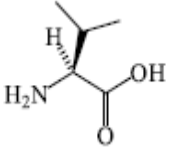
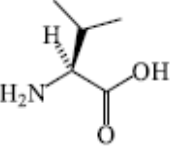
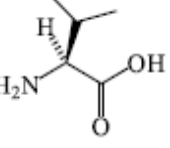


version 21 November 2023 Nitrogen-containing compounds formula, CAS #, purity, amount, type of packaging, price in US \$	Structure	$\delta^2\text{H}$ (mean value in ‰ vs. VSMOW, $\pm 1\sigma$) (range) (# of measurements)	$\delta^{13}\text{C}$ (mean value in ‰ vs. VPDB, $\pm 1\sigma$) (range) (# of measurements)	$\delta^{15}\text{N}$ (mean value in ‰ vs. AIR, $\pm 1\sigma$) (range) (# of measurements)	$\delta^{18}\text{O}$ and $\delta^{34}\text{S}$ (mean values in ‰ vs. VSMOW or VCDT, $\pm 1\sigma$) (range) (# of measurements)	for EA	for GC	liquid	volatile
Acetanilide #1 , C ₈ H ₉ NO, # 103-84-4, in glass vial, 5 g US \$250, 2 g US \$150		not determined (contains exchangeable hydrogen)	-29.53 \pm 0.01 ‰ from -29.51 to -29.54 ‰ n = 6	+1.18 \pm 0.02 ‰ from +1.16 to +1.21 ‰ n = 4	not determined				
Acetanilide #2 , C ₈ H ₉ NO, # 103-84-4, in glass vial, 2 g US \$250		not determined (contains exchangeable hydrogen)	-29.50 \pm 0.02 ‰ from -29.48 to -29.53 ‰ n = 4	+19.56 \pm 0.03 ‰ from +19.53 to +19.60 ‰ n = 7	not determined				
Acetanilide #3 , C ₈ H ₉ NO, # 103-84-4, in glass vial, 2 g US \$250		not determined (contains exchangeable hydrogen)	-29.50 \pm 0.02 ‰ from -29.49 to -29.52 ‰ n = 4	+40.57 \pm 0.06 ‰ from +40.52 to +40.66 ‰ n = 6	not determined				
L-Alanine , C ₃ H ₇ NO ₂ , CAS # 56-41-7, produced by SI Science in Japan, 100 mg in crimp-sealed glass vial, US \$250		not determined (contains exchangeable hydrogen)	-17.93 \pm 0.02 ‰ from -17.90 to -17.96 ‰ n = 5	+43.25 \pm 0.07 ‰ from +43.16 to +43.34 ‰ n = 4	not determined				
Caffeine #1, USGS61 , C ₈ H ₁₀ N ₄ O ₂ , CAS # 58-08-2, $\geq 99\%$, anhydrous, 500 mg in glass vial, US \$275		+96.9 \pm 0.9 ‰ n = 53 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	-35.05 \pm 0.04 ‰ n = 114 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	-2.87 \pm 0.04 ‰ n = 93 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	not determined				
Caffeine #2, USGS62 , C ₈ H ₁₀ N ₄ O ₂ , CAS # 58-08-2, $\geq 99\%$, anhydrous, 500 mg in glass vial, US \$275		-156.1 \pm 2.1 ‰ n = 64 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	-14.79 \pm 0.04 ‰ n = 105 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	+20.17 \pm 0.06 ‰ n = 96 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	not determined				
Caffeine #3, USGS63 , C ₈ H ₁₀ N ₄ O ₂ , CAS # 58-08-2, $\geq 99\%$, anhydrous, 500 mg in glass vial, US \$275		+174.5 \pm 0.9 ‰ n = 55 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	-1.17 \pm 0.04 ‰ n = 103 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	+37.83 \pm 0.06 ‰ n = 99 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	not determined				
Collagen powder from wild-caught marine fish, USGS88 , 0.5 g in glass vial, US \$275	special procedures need to be followed when using this reference material for H, O, and S isotope ratios	(+20.1 \pm 6.3 ‰ for non- exchangeable H when following USGS procedure) n = 12 (https://doi.org/10.1021/acs.jafc.0c02610)	-16.06 \pm 0.07 ‰ n = 54 (https://doi.org/10.1021/acs.jafc.0c02610)	+14.96 \pm 0.14 ‰ n = 50 (https://doi.org/10.1021/acs.jafc.0c02610)	(+15.91 \pm 0.44 ‰ +17.10 \pm 0.44 ‰ when following USGS pre-drying procedure) n = 18 n = 12 (https://doi.org/10.1021/acs.jafc.0c02610)				
Collagen powder from porcine origin, USGS89 , 0.5 g in glass vial, US \$275	special procedures need to be followed when using this reference material for H, O, and S isotope ratios	(-43.7 \pm 7.8 ‰ for non- exchangeable H when following USGS procedure) n = 12 (https://doi.org/10.1021/acs.jafc.0c02610)	-18.13 \pm 0.11 ‰ n = 64 (https://doi.org/10.1021/acs.jafc.0c02610)	+6.25 \pm 0.12 ‰ n = 48 (https://doi.org/10.1021/acs.jafc.0c02610)	(+8.37 \pm 0.40 ‰ +3.86 \pm 0.56 ‰ when following USGS pre-drying procedure) n = 20 n = 12 (https://doi.org/10.1021/acs.jafc.0c02610)				
N,N-Dimethylaniline , C ₈ H ₁₁ N, CAS # 121-69-7, 99 %, 1.0 mL sealed under argon in glass ampoule, US \$250		-48.2 \pm 2.2 ‰ from -45.2 to -51.0 ‰ n = 5	-23.79 \pm 0.01 ‰ from -23.78 to -23.80 ‰ n = 4	-1.15 \pm 0.03 ‰ from -1.10 to -1.18 ‰ n = 4	not applicable				
EDTA #2, ethylene diamine tetraacetic acid , C ₁₀ H ₁₆ N ₂ O ₈ , CAS # 60-00-4, 99 %, 2 g in glass vial, US \$250		not determined (contains exchangeable hydrogen)	-40.38 \pm 0.01 ‰ from -40.37 to -40.38 ‰ n = 4	-0.83 \pm 0.04 ‰ from -0.78 to -0.88 ‰ n = 6	not determined				
9-Ethylcarbazole , C ₁₄ H ₁₃ N, ≥ 99.5 %, CAS # 86-28-2, ≥ 200 mg in crimp- sealed glass vial, US \$250		-102.0 \pm 1.1 ‰ from -100.6 to -103.6 ‰ n = 7	-25.36 \pm 0.02 ‰ from -25.35 to -25.39 ‰ n = 5	+3.93 \pm 0.06 ‰ from +3.87 to +4.00 ‰ n = 5	not applicable				
Flour from Italian millet, USGS90 , 0.5 g in glass vial, US \$275	special procedures need to be followed when using this reference material for H, O, and S isotope ratios	(-13.9 \pm 2.4 ‰ for non- exchangeable H when following USGS procedure) n = 12 (https://doi.org/10.1021/acs.jafc.0c02610)	-13.75 \pm 0.06 ‰ n = 51 (https://doi.org/10.1021/acs.jafc.0c02610)	+8.84 \pm 0.17 ‰ n = 42 (https://doi.org/10.1021/acs.jafc.0c02610)	(+35.90 \pm 0.29 ‰ -15.14 \pm 0.67 ‰ when following USGS pre-drying procedure) n = 14 n = 12 (https://doi.org/10.1021/acs.jafc.0c02610)				
Flour from Vietnamese rice, USGS91 , 0.5 g in glass vial, US \$275	special procedures need to be followed when using this reference material for H, O, and S isotope ratios	(-45.7 \pm 7.4 ‰ for non- exchangeable H when following USGS procedure) n = 12 (https://doi.org/10.1021/acs.jafc.0c02610)	-28.28 \pm 0.08 ‰ n = 63 (https://doi.org/10.1021/acs.jafc.0c02610)	+1.78 \pm 0.12 ‰ n = 70 (https://doi.org/10.1021/acs.jafc.0c02610)	(+21.13 \pm 0.44 ‰ 20.85 \pm 0.72 ‰ when following USGS pre-drying procedure) n = 14 n = 12 (https://doi.org/10.1021/acs.jafc.0c02610)				
L-Glutamic acid , $\geq 99.5\%$, CAS # 56-86-0, 2 g in glass vial, US \$250		not determined (contains exchangeable hydrogen)	-28.60 \pm 0.01 ‰ from -28.58 to -28.61 ‰ n = 5	-2.38 \pm 0.04 ‰ from -2.32 to -2.42 ‰ n = 4	not determined				
Glycine #1, USGS64 , C ₂ H ₅ NO ₂ , ≥ 99.5 %, CAS # 56-40-6, 500 mg in glass vial, US \$275		not determined (contains exchangeable hydrogen)	-40.81 \pm 0.04 ‰ n = 89 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	+1.76 \pm 0.06 ‰ n = 98 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	not determined				
Glycine #2, USGS65 , C ₂ H ₅ NO ₂ , ≥ 99.5 %, CAS # 56-40-6, 500 mg in glass vial, US \$275		not determined (contains exchangeable hydrogen)	-20.29 \pm 0.04 ‰ n = 86 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	+20.68 \pm 0.06 ‰ n = 92 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	not determined				

version 21 November 2023 Nitrogen-containing compounds formula, CAS #, purity, amount, type of packaging, price in US \$	Structure	$\delta^2\text{H}$ (mean value in ‰ vs. VSMOW, $\pm 1\sigma$) (range) (# of measurements)	$\delta^{13}\text{C}$ (mean value in ‰ vs. VPDB, $\pm 1\sigma$) (range) (# of measurements)	$\delta^{15}\text{N}$ (mean value in ‰ vs. AIR, $\pm 1\sigma$) (range) (# of measurements)	$\delta^{18}\text{O}$ and $\delta^{34}\text{S}$ (mean values in ‰ vs. VSMOW or VCDT, $\pm 1\sigma$) (range) (# of measurements)	for EA	for GC	liquid	volatile
Glycine #3, USGS66 , $\text{C}_2\text{H}_5\text{NO}_2$, $\geq 99.5\%$, CAS # 56-40-6, 500 mg in glass vial, US \$275		not determined (contains exchangeable hydrogen)	$-0.67 \pm 0.04\text{‰}$ n = 96 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	$+40.83 \pm 0.06\text{‰}$ n = 92 (<i>Anal. Chem.</i> , 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	not determined				
Glycine #4 , $\text{C}_2\text{H}_5\text{NO}_2$, $\geq 99.5\%$, CAS # 56-40-6, produced by SI Science in Japan, 100 mg in crimp-sealed glass vial, US \$250		not determined (contains exchangeable hydrogen)	$-60.02 \pm 0.02\text{‰}$ from -60.00 to -60.06‰ n = 5	$-26.63 \pm 0.02\text{‰}$ from -26.61 to -26.65‰ n = 3	not determined				
N-Methylpiperidine , $\text{C}_6\text{H}_{13}\text{N}$, CAS # 626-67-5, 99 %, 0.5 mL sealed under argon in glass ampoule, US \$250		$-179.6 \pm 1.7\text{‰}$ from -177.8 to -181.2‰ n = 5	$-33.73 \pm 0.02\text{‰}$ from -33.71 to -33.75‰ n = 4	$+0.34 \pm 0.13\text{‰}$ from 0.17 to 0.52‰ n = 8	not applicable				
Nicotine #1 , $\text{C}_{10}\text{H}_{14}\text{N}_2$, $\geq 99\%$, CAS # 54-11-5, 0.25 or 0.5 mg nicotine in 0.5 mL hexane sealed under argon in glass ampoule, US \$250		not determined	$-29.98 \pm 0.01\text{‰}$ from -29.97 to -30.00‰ n = 5	$-5.82 \pm 0.05\text{‰}$ from -5.75 to -5.88‰ n = 4	not applicable				
Nicotine #2 , $\text{C}_{10}\text{H}_{14}\text{N}_2$, $\geq 99\%$, CAS # 54-11-5, 0.5 mg nicotine in 0.5 mL hexane sealed under argon in glass ampoule, US \$250		not determined	$+7.72 \pm 0.02\text{‰}$ from $+7.68$ to $+7.75\text{‰}$ n = 7	$-5.94 \pm 0.15\text{‰}$ from -5.72 to -6.18‰ n = 7	not applicable				
Nicotine #3 , $\text{C}_{10}\text{H}_{14}\text{N}_2$, $\geq 99\%$, CAS # 54-11-5, 0.25 or 0.5 mg nicotine in 0.5 mL hexane sealed under argon in glass ampoule, US \$250		not determined	$-30.05 \pm 0.02\text{‰}$ from -30.03 to -30.07‰ n = 7	$+33.62 \pm 0.18\text{‰}$ from $+33.40$ to $+33.83\text{‰}$ n = 7	not applicable				
Nicotine #4 , $\text{C}_{10}\text{H}_{14}\text{N}_2$, $\geq 99\%$, CAS # 54-11-5, 0.5 mg nicotine in 0.5 mL hexane sealed under argon in glass ampoule, US \$250		not determined	$-2.06 \pm 0.02\text{‰}$ from -2.04 to -2.08‰ n = 5	$+15.49 \pm 0.13\text{‰}$ from $+15.31$ to $+15.68\text{‰}$ n = 7	not applicable				
Nicotine #5 , $\text{C}_{10}\text{H}_{14}\text{N}_2$, $\geq 99\%$, CAS # 54-11-5, 0.5 mg nicotine in 0.5 mL hexane sealed under argon in glass ampoule, US \$250		$-161.3 \pm 1.7\text{‰}$ from -159.2 to -164.6‰ n = 10	$-29.63 \pm 0.01\text{‰}$ from -29.61 to -29.65‰ n = 5	$-6.03 \pm 0.04\text{‰}$ from -5.97 to -6.08‰ n = 5	not applicable				
L-Phenylalanine , $\text{C}_9\text{H}_9\text{NO}_2$, $\geq 99.5\%$, CAS # 63-91-2, produced by SI Science in Japan, 100 mg in crimp-sealed glass vial, US \$250		not determined (contains exchangeable hydrogen)	$-11.20 \pm 0.02\text{‰}$ from -11.19 to -11.23‰ n = 6	$+1.70 \pm 0.06\text{‰}$ from $+1.64$ to $+1.77\text{‰}$ n = 5	not determined				
L-Proline , $\text{C}_5\text{H}_9\text{NO}_2$, $\geq 99.5\%$, CAS # 147-85-3, 100 mg in crimp-sealed glass vial, US \$250		not determined (contains exchangeable hydrogen)	$-12.47 \pm 0.01\text{‰}$ from -12.45 to -12.49‰ n = 5	$-7.84 \pm 0.04\text{‰}$ from -7.77 to -7.88‰ n = 5	not determined				
Pyrazine , $\text{C}_4\text{H}_4\text{N}_2$, CAS # 290-37-9, at least 20 mg in sealed glass capillary, US \$250		$-31.8 \pm 1.7\text{‰}$ from -29.4 to -34.2‰ n = 6	not determined	$+1.39 \pm 0.04\text{‰}$ from $+1.34$ to $+1.43\text{‰}$ n = 4	not applicable				
N,N,N',N'-Tetra-n-butylurea , $\text{C}_{17}\text{H}_{36}\text{N}_2\text{O}$, CAS # 4559-86-8, 97 %, at least 10 mg sealed in glass capillary, US \$250		$-112.4 \pm 2.1\text{‰}$ from -110.5 to -114.3‰ n = 4	$-29.37 \pm 0.02\text{‰}$ from -29.35 to -29.40‰ n = 4	$-5.06 \pm 0.04\text{‰}$ from -5.00 to -5.09‰ n = 4	not determined				
N,N,N',N'-Tetramethylurea , $\text{C}_5\text{H}_{12}\text{N}_2\text{O}$, CAS # 632-22-4, 99 %, 1.0 mL sealed under argon in glass ampoule, US \$250		$-77.8 \pm 0.7\text{‰}$ from -76.7 to -78.4‰ n = 5	$-36.24 \pm 0.01\text{‰}$ from -36.23 to -36.25‰ n = 4	$-1.60 \pm 0.04\text{‰}$ from -1.55 to -1.64‰ n = 4	not determined				
Urea #1 , $\text{CH}_4\text{N}_2\text{O}$, $\geq 99.5\%$, CAS # 57-13-6, 2 g in glass vial, US \$250		not determined (contains exchangeable hydrogen)	$-34.13 \pm 0.03\text{‰}$ from -34.17 to -34.09‰ n = 6	$+0.26 \pm 0.03\text{‰}$ from $+0.20$ to $+0.28\text{‰}$ n = 7	not determined				
Urea #2a , $\text{CH}_4\text{N}_2\text{O}$, $\geq 99.5\%$, CAS # 57-13-6, 2 g in glass vial, US \$250		not determined (contains exchangeable hydrogen)	$-9.14 \pm 0.02\text{‰}$ from -9.11 to -9.17‰ n = 10	$+20.73 \pm 0.04\text{‰}$ from $+20.67$ to $+20.78\text{‰}$ n = 9	not determined				
Urea #3a , $\text{CH}_4\text{N}_2\text{O}$, $\geq 99.5\%$, CAS # 57-13-6, 2 g in glass vial, US \$250		not determined (contains exchangeable hydrogen)	$+5.89 \pm 0.03\text{‰}$ from $+5.85$ to $+5.93\text{‰}$ n = 5	$+42.05 \pm 0.03\text{‰}$ from $+42.02$ to $+42.10\text{‰}$ n = 5	not determined				
USGS88, marine collagen powder from wild-caught fish , 0.5 g in glass vial, US \$275	special procedures need to be followed when using this reference material for H, O, and S isotope ratios	$(+20.1 \pm 6.3\text{‰})$ for non-exchangeable H when following USGS procedure) n = 12 (https://dx.doi.org/10.1021/acs.jafc.0c02610)	$-16.06 \pm 0.07\text{‰}$ n = 54 (https://dx.doi.org/10.1021/acs.jafc.0c02610)	$+14.96 \pm 0.14\text{‰}$ n = 50 (https://dx.doi.org/10.1021/acs.jafc.0c02610)	$(+15.91 \pm 0.44\text{‰})$ $+17.10 \pm 0.44\text{‰}$ when following USGS pre-drying procedure) n = 18 n = 12 (https://dx.doi.org/10.1021/acs.jafc.0c02610)				

version 21 November 2023 Nitrogen-containing compounds formula, CAS #, purity, amount, type of packaging, price in US \$	Structure	$\delta^2\text{H}$ (mean value in ‰ vs. VSMOW, ± 1σ) (range) (# of measurements)	$\delta^{13}\text{C}$ (mean value in ‰ vs. VPDB, ± 1σ) (range) (# of measurements)	$\delta^{15}\text{N}$ (mean value in ‰ vs. AIR, ± 1σ) (range) (# of measurements)	$\delta^{18}\text{O}$ and $\delta^{34}\text{S}$ (mean values in ‰ vs. VSMOW or VCDT, ± 1σ) (range) (# of measurements)	for EA	for GC	liquid	volatile
USGS89, porcine collagen powder, 0.5 g in glass vial, US \$275	special procedures need to be followed when using this reference material for H, O, and S isotope ratios	(-43.7 ± 7.8 ‰ for non- exchangeable H when following USGS procedure) n = 12 (https://dx.doi.org/10.1021/acs.jafc.0c02610)	-18.13 ± 0.11 ‰ n = 64 (https://dx.doi.org/10.1021/acs.jafc.0c02610)	+6.25 ± 0.12 ‰ n = 48 (https://dx.doi.org/10.1021/acs.jafc.0c02610)	(+8.37 ± 0.40 ‰ +3.86 ± 0.56 ‰ when following USGS pre-drying procedure) n = 20 n = 12 (https://dx.doi.org/10.1021/acs.jafc.0c02610)				
USGS90, millet flour from Italy, 0.5 g in glass vial, US \$275	special procedures need to be followed when using this reference material for H, O, and S isotope ratios	(-13.9 ± 2.4 ‰ for non- exchangeable H when following USGS procedure) n = 12 (https://dx.doi.org/10.1021/acs.jafc.0c02610)	-13.75 ± 0.06 ‰ n = 51 (https://dx.doi.org/10.1021/acs.jafc.0c02610)	+8.84 ± 0.17 ‰ n = 42 (https://dx.doi.org/10.1021/acs.jafc.0c02610)	(+35.90 ± 0.29 ‰ -15.14 ± 0.67 ‰ when following USGS pre-drying procedure) n = 14 n = 12 (https://dx.doi.org/10.1021/acs.jafc.0c02610)				
USGS91, rice flour from Vietnam, 0.5 g in glass vial, US \$275	special procedures need to be followed when using this reference material for H, O, and S isotope ratios	(-45.7 ± 7.4 ‰ for non- exchangeable H when following USGS procedure) n = 12 (https://dx.doi.org/10.1021/acs.jafc.0c02610)	-28.28 ± 0.08 ‰ n = 63 (https://dx.doi.org/10.1021/acs.jafc.0c02610)	+1.78 ± 0.12 ‰ n = 70 (https://dx.doi.org/10.1021/acs.jafc.0c02610)	(+21.13 ± 0.44 ‰ 20.85 ± 0.72 ‰ when following USGS pre-drying procedure) n = 14 n = 12 (https://dx.doi.org/10.1021/acs.jafc.0c02610)	-			
L-Valine #1, USGS73, C ₅ H ₁₁ NO ₂ , CAS # 516-06-3, 99 %, 500 mg in glass vial, US \$275		not determined (contains exchangeable hydrogen)	-24.03 ± 0.04 ‰ n = 130 (Anal. Chem., 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	-5.21 ± 0.05 ‰ n = 91 (Anal. Chem., 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	not determined				
L-Valine #2, USGS74, C ₅ H ₁₁ NO ₂ , CAS # 516-06-3, 99 %, 100 mg in glass vial, freeze-dried, US \$275		not determined (contains exchangeable hydrogen)	-9.30 ± 0.04 ‰ n = 94 (Anal. Chem., 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	+30.19 ± 0.07 ‰ n = 68 (Anal. Chem., 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	not determined				
L-Valine #3, USGS75, C ₅ H ₁₁ NO ₂ , CAS # 516-06-3, 99 %, 100 mg in glass vial, freeze-dried, US \$275		not determined (contains exchangeable hydrogen)	+0.49 ± 0.07 ‰ n = 23 (Anal. Chem., 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	+61.53 ± 0.14 ‰ n = 29 (Anal. Chem., 2016, 88, 4294. http://dx.doi.org/10.1021/acs.analchem.5b04392)	not determined				