Commonly studied stable isotopes

Element	Atomic[1] Number	Masses[2] of stable nuclides	Conventional[3] measure	Units	Relative abundance of nuclides reported in δ or ε	Standard[4]	Common applications (with emphasis on low-T applications)
Hydrogen	1	**1**,2	$\delta^2H = \delta D$	% or ‰	1: 99.985% 2: 0.015%	(V)SMOW (Standard Mean Ocean Water)	Hydrology, paleoclimatology
Helium	2	3,**4**	$^3He/^4He$		3: 0.0001% 4: 99.999%	(Atmospheric He)	Mantle processes
Lithium	3	6,**7**	δ^7Li	‰	6: 7.5% 7: 92.5%	NIST SRM 8545 (L-SVEC)	Tracer of mantle flow
Boron	5	10, **11**	$\delta^{11}B$	‰	10: 19.9% 11: 80.1%	NBS 951	Saline waters & precipitates; paleo-P_{CO2} and paleo-pH
Carbon	6	**12**,13	$\delta^{13}C$	‰	12: 98.93% 13: 1.07%	PDB (a Cretaceous marine calcite)	Biological productivity, paleovegetation, C sources
Nitrogen	7	**14**, 15	$\delta^{15}N$	‰	14: 99.632% 15: 0.368%	Atmospheric N_2	Ecology, nitrogen sources
Oxygen	8	**16**, 17, 18	$\delta^{18}O$	‰	16: 99.757% 18: 0.205%	(V)SMOW (Standard Mean Ocean Water) or PDB (a Cretaceous marine calcite)	Paleothermometry, hydrology, climatology, oceanography
Silicon	14	**28**, 29, 30	$\delta^{30}Si$ or[5] $\delta^{29}Si$	‰	28: 92.22% 30: 3.09%	NBS-28 (an African sand)	Si fluxes; biofractionation (^{28}Si favored); paleothermometry
Sulfur	16	**32**, 33, 34, 36	$\delta^{34}S$	‰	32: 94.93% 34: 4.29%	CDT (Cañon Diablo Troilite)	Sulfate reduction & formation of pyrite
Chlorine	17	**35**, 37	$\delta^{37}Cl$	‰	35: 75.78% 37: 24.22%	SMOC (Standard Mean Ocean Chloride)	Saline waters and precipitates
Calcium	20	**40**, 42, 43, 44,46	$\delta^{44}Ca$	‰	40: 96.941% 44: 2.086%	NIST SRM915a or seawater Ca	Ca fluxes; biofixation (favors ^{40}Ca)
Iron	26	54, **56**, 57, 58	$\delta^{56}Fe$ or $\delta^{57}Fe$	‰	54: 5.845% 56: 91.754%	IRMM-014 and "Ig Rxs"	Biogeochemical cycles
Strontium	38	84, 86, 87, **88**	$^{87}Sr/^{86}Sr$		86: 9.86% 87: 7.00%		Mafic/felsic sources, weathering rates
Neodymium	60	**142**, 143, 144, 145, 146, 148	ε_{Nd} or $^{143}Nd/^{144}Nd$	parts per ten thousand for ε_{Nd}	143: 12.18% 144: 23.80%	CHUR (Chondritic Uniform Reservoir) for ε_{Nd}	Mafic/felsic sources

1 Elements 4, 9, 11, 13, 15, and 25 (and other larger odd numbers) are missing not for lack of interest but because each has only one stable isotope.

2 The most abundant nuclide is shown in bold; the two nuclides whose ratio are expressed in the δ or ε value are underlined. "D" is for deuterium, which is ^2H.

3 The δ notation expresses the abundance of the heavier isotope, which is commonly the scarcer isotope (as for H, C, N, O, S, Cl, & Si) but may be the more abundant one (as for Li, B, & Fe). For Sr and Nd, the nuclide in the numerator is the radiogenic isotope (from the β decay of ^{87}Rb and the α decay of ^{147}Sm respectively).

4 The U.S. National Bureau of Standards (NBS) was founded in 1901 and became the National Institute of Standards and Technology (NIST) in 1998. The European Central Bureau for Nuclear Measurements (CBNM) was founded in 1957 and became the Institute for Reference Materials and Measurement (IRMM) in 1993.

5 Most data have been reported as $\delta^{30}Si$, but biogenic silica can be analyzed via MC-ICP-MS, which does not allow measurement of ^{30}Si, so $\delta^{29}Si$ is used in those cases.

Sources: The Environmental Isotopes (http://www.science.uottawa.ca/~eih/ch1/ch1.htm). Maslin and Swann, in Leng, M.J.,ed., 2006, *Isotopes in Paleoenvironmental Research:* Dordrecht, Springer, 307 p. Ca standards: Hippler et al., 2003, *Geostandards Newsletter*, 27/1, 13-19. Fe: Johnson, C.M., and Beard, B.L., 2006, *GSA Today*, v. 16, no. 11, p. 4-10. Abundances of isotopes: Holden, N.E., Table of the Isotopes, in Lide, D.R., 2003, CRC Handbook of Chemistry and Physics (Boca Raton, CRC Press).