104.10 - Light Stable Isotopic Materials (gas, liquid and solid forms)

These RMs are for calibration of isotope-ratio mass spectrometers and associated sample preparation systems. They are distributed by NIST on behalf of the International Atomic Energy Agency (IAEA). At the request of the IAEA, quantities of these materials are limited to *one unit of each RM per laboratory every 3 years*.

The isotopic compositions are given in parts per thousand difference from isotope-ratio standards-Hydrogen and oxygen: Vienna Standard Mean Ocean Water (VSMOW), Carbon: Vienna PeeDee Belemnite (VPDB), Nitrogen: atmospheric N_2 (Air), Silicon: NBS28 Silica Sand (optical), and Sulfur: Vienna Canyon Diablo Troilite (VCDT). In RM 8545 (LSVEC) is also expressed as an absolute isotopic ratio.

For further information see: SP260-149

PLEASE NOTE: The tables are presented to facilitate comparisons among a family of materials to help customers select the best SRM for their needs. For specific values and uncertainties, the certificate is the only official source.

SRM	8301	8529	8535a	8536	8537	8539	8540	8541	8542	8544	8545	8546	8547	8548	8550	8551	8552	8553	8554	8555
Description	Boron Isotopes in Marine Carbonate (Simulated Coral and Foraminifera Solutions)	IAEA-S-3 (Sulfur Isotopes in Silver Sulfide)	VSMOW2 Vienna Standard Mean Ocean Water 2 (Hydrogen and Oxyen Isotopes in Water)	GISP-Water	SLAP-Water Light Stable Isotopic Standard	NBS22 Oil (Carbon and Hydrogen Isotopes in Oil)	IAEA-CH-7 (Carbon and Hydrogen Isotopes in Polyethylene Foil)	USGS24 Graphite (Carbon Isotopes in Graphite)	IAEA-CH-6 Sucrose (Carbon Isotopes in Sucrose)	NBS 19 Limestone (Carbon and Oxygen Isotopes in Carbonate)	LSVEC (Carbon, Oxygen, and Lithium Isotopes in Lithium Carbonate)	NBS28 (Silicon and Oxygen Isotopes in Silica Sand)	IAEA-N-1 (Nitrogen Isotopes in Ammonium Sulfate)	IAEA-N-2 (Nitrogen Isotopes in Ammonium Sulfate)	USGS25 (Nitrogen Isotopes in Ammonium Sulfate)	USGS26 (Nitrogen Isotopes in Ammonium Sulfate)	NSVEC (Nitrogen Isotopes in Gaseous Nitrogen)	IAEA-S-4 (Soufre De Lacq) (Sulfur Isotopes in Elemental Sulfur)	IAEA-S-1 (Sulfur Isotopes in Silver Sulfide)	IAEA-S-2 (Sulfur Isotopes in Silver Sulfide)
Unit Size	(6 x 4 mL)	(1 bottle x 0.5g)	(20 mL)	(20 mL)	(20 mL)	(1 mL)	(3.5 g)	(0.8 g)	(1 g)	(0.4 g)	(0.4 g)	(0.4 g)	(0.4 g)	(0.4 g)	(0.5 g)	(0.5 g)	(300 umol)	(0.5 g)	(0.5 g)	(0.5 g)
(see Certificate of Analysis for uncertainties and other details)																				
$\delta^{13}C_{VPDB} \times 1000$						*-30.03 Ref [5]*	*-32.15 Ref [5]*	*-16.05 Ref [5]*	*-10.45 Ref [5]*	*+1.95* Ref [3]*	*-46.6* Ref [5]*									
$\delta^{15}N_{Air} \times 1000$													*+0.43^ Ref [7]*	*+20.41 Ref [7]*	*-30.41 Ref [7]*	*+53.75 Ref [7]*	*-2.78 Ref [7]*			
$\Delta^{17}O_{VSMOW}$																				
$\delta^{18}O_{VPDB} \times 1000$										*-2.2* Ref [3]*	*-26.41 Ref [14]*									
$\delta^{18}O_{VSMOW} \times 1000$				*-24.78 Ref [2]*	*-55.5* Ref [1]*					*+28.65 Ref [15]*	*+3.69 Ref [15]*	*+9.58 Ref [2]*								
$\delta^{2}H_{VSMOW} \times 1000$				*-189.5 Ref [2]*	*-428* Ref [1]*	*-116.9 Ref [3]*	*-100.3 Ref [2]*													
$\delta^{30}Si_{NBS28} \times 1000$												*0* Ref [12]*								
$\delta^{34}S_{VCDT} \times 1000$		*-32.49*																*+16.86 Ref [10]*	*-0.3* Ref [11]*	*+22.62 Ref [12]*
$\delta^{11}B_{SRM951} \times 1000$	*+24.17(Coral)* *+14.51(Foram*																			
$^{6}Li/^{7}Li$											*0.08215** Ref [4]*									

* Exact values defining the delta scale
^ Interim consensus values used for scale normalization
**Absolute isotope amount ratio

Certified values are normal font.
Reference values are italized.
Values in parentheses are for Information only.

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