

Table 1. Reference materials used for isotopic and elemental calibrations

Lab A	Lab B	Lab C	Lab D
Working Reference Materials used for Isotopic Analysis (values are those used by the laboratories)			
USGS40:	USGS40:	EDTA:	In-house working reference materials
$\delta^{13}\text{C}$ -26.24 ‰	$\delta^{13}\text{C}$ -26.24 ‰	$\delta^{13}\text{C}$ -32.24 ‰	
$\delta^{15}\text{N}$ - 4.52 ‰	$\delta^{15}\text{N}$ - 4.52 ‰	$\delta^{15}\text{N}$ +0.72 ‰	
USGS41:	USGS41:		
$\delta^{13}\text{C}$ +37.76 ‰	$\delta^{13}\text{C}$ +37.76 ‰		
$\delta^{15}\text{N}$ +47.57 ‰	$\delta^{15}\text{N}$ +47.57 ‰		
(Qi and others, 2003).	(Qi and others, 2003).		
Reference Materials used for calibrating Working Reference Materials (values are those used by the laboratories)			
Same as above	Same as above	$\delta^{13}\text{C}$:	$\delta^{13}\text{C}$:
		NBS 18 carbonatite -5.0 ‰	NBS 21
		NBS 19 limestone +1.95 ‰	graphite -28.1 ‰
		NBS 22 oil -29.7 ‰	$\delta^{15}\text{N}$:
		IAEA CH 6 sucrose -10.4 ‰	IAEA N1 ammonium
		$\delta^{15}\text{N}$:	sulfate +0.4 ‰
		IAEA N1 ammonium	IAEA N2 ammonium
		sulfate +0.4 ‰	sulfate +20.3 ‰
		IAEA N2 ammonium	
		sulfate +20.3 ‰	
		USGS 25 ammonium	
		sulfate	
		USGS 26 ammonium +50.2 ‰ (provisional)	
		sulfate	
		+53.6 ‰ (provisional)	
Working Reference Materials for Elemental Concentrations			
Atropine	USGS40	EDTA	In-house working reference materials
	USGS41		

EDTA-Ethylenediaminetetraacetic acid NBS-National Institute of Standards and Technology (NIST) Reference Material

Most of the Standard Reference Materials listed here are distributed by NIST on behalf of the International Atomic Energy Agency (IAEA).

Descriptions of the materials may be found at: <https://srms.nist.gov/tables/104-10.htm> (accessed 3/22/2006).

Table 2. Analytical results for individual laboratories

		$\delta^{13}\text{C}_{\text{ncc}}$				Wt% C _{ncc}				$\delta^{15}\text{N}$				Wt% N			
	Lab A	Lab B	Lab C	Lab D	Lab A	Lab B	Lab C	Lab D	Lab A	Lab B	Lab C	Lab D	Lab A	Lab B	Lab C	Lab D	
SDO-1	-30.40	-30.14	-28.83	-29.7	8.83	9.92	11.33	9.48		-1.51	-0.31	-1.0	0.30	0.39	0.37	0.37	
	-30.00	-30.27	-29.03	-29.8	8.84	9.86	9.83	9.52		-1.8	-0.38	-0.7	0.30	0.39	0.35	0.37	
	-29.90	-30.12			9.64	9.61				-0.74			0.38	0.36			
	-29.80	-30.16			9.96	9.5			No	-0.58			0.36	0.36			
	-30.00	-30.17			9.18	9.56			values	-0.67			0.34	0.36			
	-30.00	-30.22			8.99	9.57			reported	-0.62			0.34	0.36			
	-30.10	-30.22			9.45	9.78				-0.67			0.32	0.37			
	-30.00	-30.21			9.29	9.82				-0.47			0.31	0.37			
	-30.00	-30.16			10.61	9.43				-0.61			0.35	0.37			
	-30.60	-30.12			9.65	9.52				-0.44				0.36			
	-30.70	-29.60			9.32	9.55				-0.31				0.37			
	-30.50	-29.75			9.32	10.85				-1.90				0.41			
	-30.40				9.17	9.87				-1.6				0.39			
SGR-1	-29.50	-29.31	-28.43	-29.2	23.05	25.36	25.74	25.10		15.56	16.92	18.3	0.71	0.88	0.78	0.87	
	-29.40	-29.28	-28.51	-29.6	22.14	23.75	25.65	24.42		15.98	17.13	18.4	0.75	0.87	0.78	0.88	
	-29.30	-29.37			23.51	23.09				18.39			0.79	0.79			
	-29.60	-29.28			23.85	22.98			No	17.90			0.72	0.79			
	-29.50	-29.31			25.93	23.54			values	17.82			0.81	0.81			
	-29.80	-29.34			24.16	22.10			reported	18.02				0.76			
	-29.80	-29.30			24.15	24.00				17.51				0.82			
	-29.40	-29.48			22.67	24.69				17.40				0.85			
	-29.80	-29.36			24.56	24.46				18.48				0.82			
		-29.36				23.43				17.80				0.82			
		-29.32				23.47				17.51				0.83			
		-29.35				23.94				18.20				0.84			
		-29.12				24.44				16.08				0.87			
		-29.12				24.16				16.00				0.87			
	PACS-2	-23.00	-24.72	-23.11	-23.4	2.83	3.43	3.20	3.29	4.70	4.70	4.75	4.2	0.23	0.28	0.28	0.30
		-22.90	-25.51	-24.46	-23.3	2.80	3.67	4.06	3.09	4.80	4.68	5.62	4.5	0.23	0.28	0.30	0.29
-23.10		-23.61			3.01	3.21			6.50	5.49			0.24	0.28			
-22.80		-23.72			2.85	3.25			4.40	5.31			0.23	0.28			
-22.60		-23.70			3.06	3.25			4.40	5.16			0.26	0.28			
-22.80		-23.73			3.08	3.26			4.50	5.28			0.26	0.28			
-22.60		-23.83			2.98	3.28			4.40	5.10			0.26	0.28			
-22.80		-23.63			2.94	3.26			4.50	5.13			0.23	0.29			
-22.70		-23.72			2.93	3.18			4.70	5.36			0.23	0.28			
-22.80		-23.76			2.89	3.29			5.30	4.92			0.23	0.29			
-22.90		-23.69			3.25	3.28			4.70	5.16			0.26	0.28			
-23.10		-23.11			3.41	3.23			4.30	5.26			0.25	0.29			
-23.40		-23.12			3.15	3.18				5.16				0.29			
-23.60		-23.10			3.15	3.02				5.21				0.28			
-23.00		-23.13			3.07	3.11				4.95				0.28			
-23.50		-23.51			3.23	3.04				4.74				0.28			
-23.30		-23.18			3.34	3.07				4.87				0.28			
-22.90		-23.05			3.13	3.37				4.77				0.29			
-22.80					3.12	3.1				4.46				0.28			
-23.10					3.21	3.09				4.76				0.28			

**Table 3. Test for normality of data distribution
for analyses from laboratories A and B**

SDO-1	Data Set	Mean	SD	P value
$\delta^{13}\text{C} \text{ ‰}$	Lab A	-30.2	0.3	0.32
$\delta^{13}\text{C} \text{ ‰}$	Lab B	-30.1	0.2	*0.01
Wt % C_{ncc}	Lab A	9.40	0.49	0.44
Wt % C_{ncc}	Lab B	9.76	0.37	*0.03
PACS-2				
$\delta^{13}\text{C} \text{ ‰}$	Lab A	-23.0	0.3	0.40
$\delta^{13}\text{C} \text{ ‰}$	Lab B	-23.7	0.6	*0.03
Wt % C_{ncc}	Lab A	3.07	0.17	0.99
Wt % C_{ncc}	Lab B	3.23	0.15	*0.01
$\delta^{15}\text{N} \text{ ‰}$	Lab A	4.77	0.61	*0.02
$\delta^{15}\text{N} \text{ ‰}$	Lab B	5.02	0.28	0.66
Wt % N	Lab A	0.24	0.01	0.14
Wt % N	Lab B	0.28	0.00	*0

SD is the standard deviation. The P value is the probability of wrongly rejecting the hypothesis that the data from each lab is normally distributed. To reject the hypothesis that the data sets are normally distributed with a 95% probability of being correct, the P value must be ≤ 0.05 . *These data sets are not normally distributed.

Table 4. Descriptive statistics

Identification	$\delta^{13}\text{C}$ (‰)	Wt% C_{ncc}	$\delta^{15}\text{N}$ (‰)	Wt% N
As Reported				
SDO-1	-30.0 (0.4) (n=29)	9.64 (0.53) (n=30)	-0.8 (0.6) (n=18)	0.36 (0.03) (n=26)
SGR-1	-29.3 (0.3) (n=27)	24.01 (1.01) (n=27)	17.4 (0.9) (n=18)	0.81 (0.05) (n=23)
PACS-2	-23.3 (0.6) (n=42)	3.17 (0.22) (n=44)	4.9 (0.5) (n=36)	0.27 (0.02) (n=36)

Data are reported as Mean (Standard Deviation)

(n = number of values used to calculate the mean)

Carbon isotope data are reported relative to Vienna Peedee Belemnite (VPDB).

Nitrogen isotope data are reported relative to atmospheric nitrogen.

Table 5. Suggested isotopic and elemental values

Identification	$\delta^{13}\text{C}$ (‰)	Wt% C_{ncc}	$\delta^{15}\text{N}$ (‰)	Wt% N
SDO-1	-30.0 $\pm$ 0.1	9.64 $\pm$ 0.19	- 0.8 $\pm$ 0.3	0.36 $\pm$ 0.01
SGR-1	-29.3 $\pm$ 0.1	24.01 $\pm$ 0.38	17.4 $\pm$ 0.4	0.81 $\pm$ 0.02
PACS-2	-23.3 $\pm$ 0.2	3.17 $\pm$ 0.06	4.9 $\pm$ 0.1	0.27 $\pm$ 0.01

Data are reported as Mean $\pm$ the 95% confidence interval.

Carbon isotope data are reported relative to Vienna Peedee Belemnite (VPDB).

Nitrogen isotope data are reported relative to atmospheric nitrogen.