

Table S1: Raw A₂₇ and A₄₈ data for all samples, standards and heated gases

Date	Type	n	Sample ID	spec #/s	A ₂₇ (%WG)	A ₄₈ (%WG)	A ₂₇ uncorrected (1 s.e.)	A ₄₈ uncorrected (1 s.e.)	A ₂₇ HG corr (1 s.e.)	A ₄₈ HG corr (1 s.e.)	A ₂₇ STD corr (%WG, STD)	A ₄₈ STD corr (%WG, STD)	A ₂₇ STD corr accepted, 25C (%WG)	A ₄₈ STD corr accepted, 25C (%WG)	Caltech Temp Ghosh (°C)	ARF Temp Ghosh (°C)	ARF Temp Dennis (°C)
SS9 - August, 2009 (manual processing, Caltech MS1, acid digestion @ 25°C, standard corrected and ARF adjusted using CM05)																	
08/04/09	heated gas	8	Heated Mix	2581	9.433	0.007	-0.72	0.008	42.19	7.458	-0.002	-0.002	N.A.	0.000	0.020		
08/06/09	heated gas	8	Heated EBOC	2613	25.28	0.010	-0.557	0.009	80.27	14.17	0.011	0.011	N.A.	0.000	0.034		
08/07/09	heated gas	8	Heated BOC	2645	-2.695	0.006	-0.809	0.006	11.98	2.137	0.025	0.026	N.A.	0.000	0.025		
08/10/09	standard	8	CM05	2669	20.05	0.009	-0.275	0.009	36.18	6.747	0.342	0.358	N.A.	0.371	0.371	0.028	0.409
08/11/09	heated gas	8	Heated BOC	2685	-2.667	0.007	-0.853	0.010	12.47	2.507	-0.019	-0.020	N.A.	0.000	0.026		
08/11/09	heated gas	8	Heated EBOC	2709	22.91	0.009	-0.579	0.012	13.57	2.777	-0.009	-0.009	N.A.	0.000	0.020		
08/12/09	heated gas	8	Heated Mix	2717	10.86	0.008	-0.709	0.006	43.86	7.520	-0.005	-0.005	N.A.	0.000	0.020		
08/12/09	sample	7	UT-07-44	2733	2.725	0.007	-0.246	0.006	19.06	4.611	0.536	0.561	N.A.	0.574	0.021	0.622	42.4
08/12/09	sample	8	UT-07-44	2743	2.702	0.004	-0.253	0.005	18.71	4.297	0.529	0.553	N.A.	0.567	0.020	0.615	44.4
08/12/09	heated gas	8	Heated Mix	2751	-9.865	0.010	-0.916	0.010	3.739	0.869	-0.014	-0.014	N.A.	0.000	0.034		
SS10 - January, 2010 (autoline, Caltech MS2, acid digestion @ 90°C, standard corrected and ARF adjusted using CM05, NBS-19 and Hagit Carrera)																	
2010-1-14	heated gas	8	Heated EBOC	396	22.62	0.017	-0.179	0.010	114.5	52.50	-0.002	-0.002	N.A.	0.000	0.011		
2010-1-16	heated gas	8	Heated EBOC	538	24.04	0.011	-0.130	0.011	119.3	54.83	0.011	0.012	0.012	0.000	0.011		
2010-1-18	heated gas	7	Heated BOC	645	22.39	0.018	-0.184	0.007	114.8	52.37	-0.001	-0.001	-0.001	0.000	0.009		
2010-1-18	standard	8	NBS-19	653	17.68	0.017	-0.055	0.010	46.75	22.10	0.247	0.278	0.278	0.351	0.352	0.011	0.389
2010-1-19	sample	8	UT-07-47	669	0.070	0.012	-0.300	0.007	21.27	10.26	0.450	0.506	0.587	0.578	0.578	0.010	0.617
2010-1-19	sample	8	NV-07-109	702	2.892	0.021	-0.160	0.010	8.019	3.946	0.518	0.583	0.664	0.655	0.655	0.011	0.695
2010-1-19	heated gas	8	Heated BOC	710	-2.975	0.016	-0.820	0.011	18.03	8.650	0.007	0.008	0.008	0.000	0.000		
2010-1-19	standard	6	CM05	719	18.34	0.035	-0.005	0.013	49.38	23.55	0.281	0.316	0.397	0.389	0.371	0.014	0.427
2010-1-20	heated gas	8	Heated BOC	772	-2.561	0.019	-0.832	0.012	22.32	9.961	-0.010	-0.011	-0.011	0.000	0.011		
2010-1-20	standard	8	CM05	780	18.38	0.011	-0.028	0.014	50.03	24.06	0.257	0.289	0.370	0.361	0.371	0.015	0.399
2010-1-21	sample	8	UT-07-47	812	0.189	0.021	-0.290	0.018	22.59	11.37	0.457	0.513	0.594	0.586	0.586	0.019	0.625
2010-1-21	heated gas	8	Heated EBOC	829	25.42	0.015	-0.113	0.012	126.8	58.65	-0.008	-0.009	-0.009	0.000	0.014		
2010-1-22	standard	8	CM05	846	18.24	0.017	-0.028	0.010	49.38	23.66	0.260	0.292	0.373	0.365	0.371	0.011	0.403
2010-1-22	heated gas	8	Heated BOC	904	-2.535	0.019	-0.814	0.016	12.44	2.461	-0.004	-0.004	-0.004	0.000	0.011		
2010-1-23	standard	7	Hagit Carrera	941	18.34	0.016	-0.033	0.010	47.56	22.23	0.253	0.285	0.366	0.357	0.352	0.011	0.395
2010-1-24	heated gas	8	Heated BOC	968	-2.975	0.010	-0.836	0.008	17.50	8.363	-0.009	-0.010	-0.010	0.000	0.011		
2010-1-24	sample	8	NV-07-109	976	2.953	0.011	-0.166	0.012	8.378	4.180	0.511	0.574	0.655	0.647	0.647	0.013	0.686
2010-1-24	sample	8	NV-07-109	1010	2.997	0.009	-0.175	0.009	8.251	3.850	0.501	0.563	0.644	0.636	0.636	0.011	0.675
SS11a - June 2010 (autoline, Caltech MS2, acid digestion @ 90°C, standard corrected and ARF adjusted using Hagit Carrera and Carmel Chalk)																	
2010-5-31	standard	7	CM05	6272	18.09	0.009	-0.071	0.011	45.18	19.94	0.262	0.295	0.376	0.385	0.371	0.012	0.424
2010-5-31	sample	7	UT-07-28-1	6280	1.215	0.012	-0.285	0.008	23.91	10.72	0.438	0.493	0.573	0.581	0.581	0.010	0.637
2010-5-31	sample	7	UT-07-28-2	6288	1.119	0.012	-0.268	0.013	23.71	10.40	0.457	0.514	0.594	0.602	0.602	0.010	0.660
2010-6-1	sample	7	UT-07-28-1	6301	-1.343	0.011	-0.303	0.008	21.38	9.668	0.454	0.514	0.592	0.600	0.600	0.011	0.630
2010-6-1	sample	7	UT-07-28-1	6304	0.361	0.011	-0.288	0.012	21.27	9.281	0.455	0.512	0.592	0.600	0.600	0.011	0.658
2010-6-1	sample	7	UT-07-28-1	6312	1.076	0.018	-0.284	0.014	23.09	9.968	0.442	0.498	0.578	0.586	0.586	0.016	0.642
2010-6-1	sample	7	UT-07-28-2	6321	1.141	0.018	-0.242	0.023	23.44	10.08	0.482	0.543	0.623	0.631	0.631	0.024	0.692
2010-6-1	standard	7	CM05	6331	18.07	0.012	-0.090	0.012	44.00	18.77	0.244	0.274	0.355	0.363	0.371	0.014	0.401
2010-6-1	heated gas	8	Heated BOC	6339	-2.784	0.019	-0.848	0.008	16.47	6.834	-0.004	-0.004	-0.004	0.000	0.011		
2010-6-1	standard	7	CM05	6357	18.09	0.014	-0.064	0.016	43.90	18.67	0.269	0.303	0.384	0.392	0.371	0.017	0.431
2010-6-2	sample	7	NV-07-119	6373	8.686	0.012	-0.066	0.010	23.56	10.27	0.484	0.545	0.625	0.633	0.633	0.012	0.694
2010-6-2	sample	7	UT-07-28-2sp	6385	-1.355	0.016	-0.333	0.009	12.25	5.218	0.449	0.505	0.585	0.594	0.594	0.012	0.651
2010-6-2	sample	8	UT-07-35-1	6395	0.402	0.007	-0.292	0.006	20.79	9.732	0.450	0.506	0.586	0.595	0.595	0.009	0.652
2010-6-2	sample	7	NV-07-109	6449	6.798	0.019	-0.473	0.017	26.79	12.41	0.481	0.549	0.629	0.637	0.637	0.016	0.693
2010-6-2	sample	8	NV-07-119	6413	8.704	0.010	-0.010	0.009	23.28	10.09	0.560	0.630	0.710	0.718	0.718	0.011	0.787
2010-6-2	heated gas	8	Heated EBOC	6422	27.26	0.012	-0.133	0.010	122.0	49.76	-0.011	-0.013	-0.013	0.000	0.011		
2010-6-3	standard	8	Carmel Chalk	6431	11.71	0.007	0.020	0.005	35.92	15.50	0.501	0.564	0.645	0.653	0.644	0.008	0.715
2010-6-3	sample	8	NV-07-110	6440	5.261	0.012	-0.121	0.012	8.105	3.634	0.508	0.572	0.652	0.660	0.660	0.013	0.723
2010-6-3	sample	8	NV-07-110	6449	0.780	0.013	-0.216	0.010	9.968	5.104	0.467	0.514	0.602	0.609	0.609	0.011	0.661
2010-6-3	sample	8	UT-07-41-1(A)	6458	4.171	0.009	-0.201	0.009	21.29	9.187	0.453	0.510	0.590	0.598	0.598	0.011	0.656
2010-6-3	sample	8	UT-07-41-1sp	6467	2.184	0.011	-0.237	0.010	16.66	7.347	0.463	0.521	0.601	0.610	0.610	0.012	0.668
2010-6-3	sample	8	NV-07-110	6478	5.246	0.015	-0.128	0.015	7.671	3.242	0.501	0.565	0.645	0.653	0.644	0.017	0.715
2010-6-3	heated gas	7	Heated BOC	6487	-2.606	0.015	-0.826	0.016	17.24	7.159	-0.016	-0.018	-0.018	0.000	0.011		
2010-6-4	standard	8	UT-07-41-1sp	6497	0.758	0.009	-0.268	0.008	22.01	9.848	0.469	0.528	0.608	0.617	0.617	0.010	0.676
2010-6-4	standard	7	Hagit Carrera	6520	18.25	0.013	-0.059	0.013	44.43	19.30	0.270	0.304	0.385	0.393	0.352	0.014	0.433
2010-6-4	sample	8	UT-07-45 cement	6529	-2.777	0.014	-0.413	0.016	5.871	2.555	0.401	0.452	0.532	0.540	0.540	0.018	0.593
2010-6-4	sample	8	UT-07-41-1(B)	6538	2.638	0.013	-0.232	0.010	18.97	8.451	0.458	0.516	0.596	0.604	0.604	0.012	0.662
2010-6-4	sample	8	UT-07-41-1(C)	6547	3.991	0.010	-0.172	0.009	21.30	9.202	0.487	0.548	0.628	0.636	0.636	0.011	0.697
2010-6-4	sample	8	UT-07-41-1sp	6552	2.194	0.011	-0.232	0.017	16.52	7.242	0.463	0.520	0.602	0.610	0.610	0.012	0.668
2010-6-5	hg	7	Heated EBOC	6567	26.67	0.011	-0.150	0.010	120.1	49.05	-0.015	-0.017	-0.017	0.000	0.011		
2010-6-5	sample	7	UT-07-41 cement	6612	2.593	0.011	-0.239	0.012	18.89	8.449	0.451	0.508	0.588	0.596	0.596	0.014	0.654
2010-6-6	standard	7	Carmel Chalk	6621	11.73	0.011	0.016	0.011	35.95	15.53	0.496	0.559	0.640	0.646	0.644	0.012	0.710
2010-6-6																	

