

APPENDIX

Supplementary material for the paper, “Age of the Camagüey Gold-Silver District, Cuba: Tectonic Evolution and Preservation of Epithermal Mineralization in Volcanic Arcs” by S.E. Kesler, C.M. Hall, N. Russell, E. Piñero, R. Sánchez, M. Perez, and J. Moreira (vol. 99, issue 5, p. 869–886).

The main data table contains Ar isotope concentration data from all of the analyses used in this study. Age spectra and isochrons can be constructed from the data. We include a copy of the sample description table from the paper so that sample names can be easily cross referenced with sampling location.

The sample names in the sample column are in two parts. The first line is an internal irradiation package number and the second line refers to the sample names in Table 1 from the paper (also included above). The sample name also includes the physical form with the following abbreviations used: musc. = muscovite, Kspar = K feldspar. The data were collected using a VG1200S noble gas mass spectrometer connected to a laser fusion system equipped with a 5W continuous Ar ion laser. Details of the methodology are in the text of the paper. All errors are 1σ . The columns Vol36, Vol37, Vol38,

Vol39 and Vol40 are the volumes of the argon isotopes 36 through 40, respectively. Where there is no sample mass indicated, isotope volumes are in units of ccSTP $\times 10^{13}$. Where a sample mass is indicated (for vacuum encapsulation runs) volumes are in units of ccSTP/g $\times 10^{13}$. Power is the laser output power in mW. J and ages are calculated assuming an age of 520.4 Ma for standard hornblende MMhb-1. All volumes are blank corrected, which can cause some values to be “negative.” These are left as negative values to avoid bias caused by assigning them a zero value. Where small, “negative” apparent ages are calculated using a linear approximation for the standard age equation near zero age. However, in some cases where there is a gas fraction near the blank values, hugely negative apparent ages can result. Those values are left blank, but the total gas ages for those samples is calculated by adding up all of the gas fractions. “Retention ages” are calculated for vacuum-encapsulated samples by omitting the first room temperature (recoil) gas fraction. The ^{37}Ar and ^{39}Ar volumes are decay corrected. Correction for interfering reactions from Ca and K have been applied. F39 refers to the fraction of ^{39}Ar released.

Copy of Table 1. Sample Locations and Descriptions

Sample no.	Deposit or prospect	Topo sheet and coordinates	Description of sample
Deposits and prospects hosted by the Camujiro Formation			
CSE-22-36	Jacinto	Casorro – 446800E, 289400N	Quartz vein with layer of hydrothermal adularia
CSE-22-41	Jacinto	Same as CSE-22-41	Quartz vein with layer of hydrothermal adularia
DES-2	Deseada	Casorro – 448100E, 280000N	Feldspar porphyry with microcrystalline groundmass
D-1	Deseada	Casorro – 448090E, 280120N	Alunite-quartz-rutile-diaspore-kaolinite replacing volcanic(?) rock
C-00-43	La Mina	Sibanicu – 407400E, 292000N	Coarse-grained muscovite and quartz
C-00-21	Tres Antenas	Vidot – 398300E, 291300N	Unaltered feldspar porphyry
C-00-21B	Tres Antenas	Same as C-00-21	Altered volcanic(?) rock with abundant sericite
Deposits and Prospects Hosted by the Caobilla Formation			
C-00-13A	Dumañuecos	Manati – 486200E, 289700N	Illite-rich, altered volcanic rock
C-00-24A	Loma Urabo	Florida – 198000E, 199000N	Very fine-grained sericite (muscovite) replacing volcanic(?) rock
C-00-24B	Loma Urabo	Same as C-00-24	Coarse-grained muscovite replacing volcanic(?) rock
C-00-29B	Loma Carolina	Ceballo – 740500E, 233900N	Silicified rock with alunite and kaolinite
C-00-30B	San Nicolas	Gaspar – 754000E, 220000N	Fine-grained sericite (muscovite) veining volcanic(?) rock
C-00-31A	Gaspar	Gaspar – 756000E, 218000N	Fine-grained sericite (muscovite) veining volcanic(?) rock

Argon Data Table: Ar Isotope Data

Sample

Sample	F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
mi78-o3a	J = 0.0071584 ± 0.0000090 Total gas age = 70.08 ± 1.28													
DES-2 K spar														
	0.1541	100	6.81	0.17	20.33	0.28	8.29	0.24	262.86	0.63	2912.7	3.0	43.8	2.4
	0.3536	200	0.28	0.14	32.57	0.65	1.15	0.19	340.28	0.98	2130.3	3.9	76.1	1.6
	0.5142	300	0.15	0.13	25.04	0.30	0.53	0.15	273.99	0.82	1646.1	2.7	74.0	1.7
	0.6346	400	0.11	0.16	25.80	0.54	0.49	0.14	205.38	0.80	1230.8	1.0	73.8	2.9
	0.7118	600	0.20	0.14	18.81	0.35	0.27	0.20	131.59	0.40	808.0	1.2	72.0	4.0
	0.8261	800	0.28	0.13	32.00	0.54	0.96	0.17	195.00	0.66	1271.7	2.2	77.0	2.4
	0.8487	1000	0.15	0.11	4.63	0.31	0.25	0.18	38.49	0.44	245.8	1.7	66.8	10.2
	0.8608	1200	0.09	0.15	1.03	0.33	0.16	0.20	20.67	0.27	135.5	1.6	65.9	26.4
	0.8668	1400	0.04	0.12	0.87	0.33	0.28	0.16	10.17	0.29	64.2	2.7	65.1	44.9
	0.9074	1600	-0.02	0.12	9.25	0.39	0.54	0.15	69.25	0.30	442.7	1.9	81.6	6.1
	0.9364	2000	0.28	0.26	14.46	0.45	0.38	0.19	49.46	0.41	324.2	1.2	61.7	19.2
	0.9921	2800	0.16	0.21	20.22	0.41	0.56	0.18	95.16	0.52	620.2	1.4	76.0	8.2
	1.0000	4000	-0.09	0.22	2.75	0.41	0.15	0.17	13.41	0.42	99.9	1.2	117.9	59.8
mi78-o4a	J = 0.0071547 ± 0.0000103 Total gas age = 92.55 ± 2.11													
D-1 Alunite														
	0.0235	100	0.95	0.12	0.74	0.25	13.92	0.19	17.39	0.36	416.7	1.7	97.4	24.5
	0.8160	200	1.09	0.16	6.85	0.46	6.41	0.19	585.76	1.23	4301.2	7.4	85.6	1.0
	0.9832	300	0.30	0.12	2.58	0.29	1.17	0.13	123.54	0.37	936.7	2.2	86.4	3.7
	0.9930	400	0.23	0.16	1.28	0.31	0.53	0.14	7.25	0.27	73.0	1.9	6.7	83.9
	0.9957	500	0.23	0.11	0.83	0.31	0.48	0.12	2.03	0.20	34.6	1.6	-223.6	238.2
	0.9979	1000	0.44	0.13	1.39	0.30	1.56	0.14	1.60	0.18	96.4	1.7	-287.3	369.3
	0.9991	2000	0.55	0.13	0.81	0.34	3.53	0.16	0.92	0.23	210.1	1.7	553.1	405.0
	0.9995	3000	0.81	0.17	1.05	0.30	8.22	0.19	0.26	0.12	398.6	1.7	3052.4	843.3
	0.9997	4000	0.39	0.12	1.00	0.27	7.21	0.12	0.19	0.12	327.3	1.7	3963.4	1093.8
	1.0000	4001	0.38	0.11	0.74	0.42	5.20	0.13	0.19	0.16	231.6	1.7	3086.2	1335.4
mi78-o4b	J = 0.0071547 ± 0.0000103 Total gas age = 81.84 ± 0.28													
D-1 Alunite														
	0.9554	400	7.69	0.22	64.44	0.45	67.89	0.56	6466.34	3.00	44726.1	10.2	82.8	0.1
	0.9910	600	0.96	0.15	4.10	0.51	2.87	0.13	240.37	0.71	1862.1	2.4	82.8	2.2
	0.9944	800	0.80	0.16	1.74	0.36	1.58	0.13	23.39	0.35	229.1	1.2	-4.1	26.1
	0.9965	1000	0.77	0.14	0.54	0.33	1.75	0.17	14.01	0.15	152.4	0.9	-70.1	40.3
	0.9981	1400	0.81	0.14	0.57	0.34	2.81	0.17	10.92	0.23	192.5	1.0	-57.9	50.0
	0.9987	1800	0.91	0.21	0.44	0.29	4.21	0.16	4.32	0.17	234.7	0.9	-103.2	199.8
	0.9995	2400	1.24	0.13	0.60	0.36	6.22	0.12	5.29	0.24	358.1	1.1	-17.7	93.8
	1.0000	3000	1.04	0.15	0.26	0.35	6.43	0.15	3.24	0.22	345.5	0.9	151.2	166.6
mi78-o4c	J = 0.0071547 ± 0.0000103 Total gas age = 84.71 ± 0.15													
D-1 Alunite														
	0.0000	25	0.05	0.11	-1.67	0.65	0.06	0.11	-0.11	0.12	52.5	0.4		4532.7
	0.0000	50	0.47	0.06	0.42	0.65	0.76	0.13	0.37	0.12	124.0	0.6		914.2
	0.0001	75	2.32	0.11	-0.08	0.71	4.69	0.13	1.80	0.14	743.6	1.6	372.7	191.2
	0.0002	100	1.58	0.10	-0.61	0.60	4.15	0.13	1.65	0.16	478.5	0.5	78.6	228.9
	0.0003	125	1.37	0.11	-0.21	0.89	4.34	0.09	1.83	0.13	386.0	0.8	-131.7	255.3
	0.0004	150	1.26	0.09	-0.12	0.93	5.35	0.11	2.71	0.15	367.2	1.4	-27.7	134.8
	0.0007	175	1.24	0.09	-0.56	0.80	7.44	0.08	6.72	0.14	426.1	0.7	113.7	47.5
	0.0140	200	3.57	0.11	6.22	0.80	24.09	0.23	287.97	0.37	3048.1	2.1	87.2	1.5
	0.0436	210	2.23	0.14	7.95	1.15	11.38	0.21	643.41	1.20	4905.4	1.6	83.3	0.8
	0.0834	220	1.48	0.11	10.46	1.04	8.51	0.30	862.00	0.82	6079.7	6.8	82.6	0.5
	0.1330	230	1.43	0.12	10.90	1.11	7.65	0.27	1076.54	1.41	7447.4	4.1	82.3	0.4
	0.2078	250	1.58	0.09	13.71	1.12	8.99	0.21	1621.09	1.04	11040.6	4.1	82.3	0.2
	0.3089	275	1.45	0.11	18.17	0.99	10.74	0.23	2193.04	1.41	14884.0	7.6	83.1	0.2
	0.4212	300	1.64	0.09	20.08	0.95	10.21	0.25	2436.32	3.06	16530.6	5.9	83.1	0.2
	0.5321	325	1.43	0.11	23.97	1.25	9.93	0.24	2404.21	2.19	16484.5	7.3	84.2	0.2
	0.6359	350	1.67	0.11	24.97	1.00	9.77	0.16	2252.86	2.14	15712.7	6.4	85.2	0.2
	0.7312	375	1.24	0.08	24.54	0.92	8.49	0.25	2066.27	2.07	14566.0	5.7	86.6	0.2
	0.8038	400	1.36	0.08	19.96	0.88	6.99	0.30	1574.76	1.81	11252.0	6.5	86.8	0.2
	0.8569	425	1.28	0.12	15.59	0.96	5.53	0.14	1151.44	1.91	8271.6	2.4	86.4	0.4
	0.8967	450	0.89	0.12	9.64	1.05	4.32	0.18	863.30	0.81	6221.1	4.4	87.0	0.5
	0.9320	500	1.22	0.08	8.81	0.97	4.43	0.17	764.83	1.21	5601.2	4.2	86.3	0.4
	0.9631	575	0.91	0.10	7.34	1.28	4.12	0.20	675.19	1.04	4925.8	3.4	86.9	0.6
	0.9848	650	0.87	0.08	5.66	0.87	3.04	0.18	470.83	1.13	3435.2	3.1	85.1	0.7
	0.9952	725	0.48	0.06	2.89	0.81	1.63	0.15	223.78	0.67	1599.2	1.8	82.2	0.9
	0.9972	800	0.00	0.09	0.35	0.71	0.57	0.12	43.76	0.33	314.7	0.9	90.7	7.2
	0.9979	900	-0.05	0.10	-0.91	1.20	0.57	0.16	16.72	0.19	117.6	0.8	98.8	20.8
	0.9985	1200	0.34	0.07	-0.10	0.91	1.97	0.11	12.33	0.18	149.2	0.6	51.1	21.5

	0.9990	1600	0.83	0.09	2.98	1.09	6.42	0.11	10.62	0.18	286.7	1.0	48.1	31.6
	0.9993	2000	0.83	0.12	2.89	0.76	5.56	0.17	6.23	0.21	255.7	0.9	20.6	70.1
	0.9996	2800	2.65	0.12	3.35	0.79	18.13	0.25	7.16	0.19	911.0	1.7	219.0	58.5
	1.0000	4000	5.71	0.09	4.12	0.87	36.54	0.30	8.27	0.11	1899.3	1.8	304.5	34.2
mi78-o4d	J = 0.0071547 ± 0.0000103 Total gas age = 83.68 ± 0.29													
D-1 Alunite	F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
	0.0003	50	4.54	0.19	1.13	0.65	8.66	0.19	2.49	0.18	1368.8	2.3	141.6	268.6
	0.0010	100	1.59	0.11	0.07	0.90	16.09	0.25	6.13	0.20	534.8	1.4	131.1	65.4
	0.0304	150	2.18	0.14	4.05	1.03	19.43	0.36	250.05	0.68	2305.4	1.8	83.7	2.1
	0.1411	175	1.83	0.12	9.55	0.84	8.35	0.20	940.63	0.87	6654.9	6.1	82.0	0.5
	0.2868	190	1.40	0.09	12.14	1.18	6.07	0.27	1238.01	1.81	8401.5	5.9	81.4	0.3
	0.4246	200	1.36	0.11	9.52	1.42	5.30	0.22	1170.72	1.29	7989.4	4.8	81.8	0.4
	0.5533	210	1.28	0.08	11.80	1.11	4.29	0.25	1093.62	1.87	7507.2	4.0	82.2	0.3
	0.6634	220	1.49	0.13	12.27	1.25	4.50	0.28	936.30	1.29	6636.7	3.0	83.4	0.5
	0.7549	230	0.84	0.13	8.95	1.16	3.33	0.24	777.03	1.33	5447.5	3.3	84.4	0.6
	0.8237	240	0.86	0.14	6.27	1.14	2.69	0.13	584.98	0.95	4132.8	1.8	83.6	0.9
	0.8762	250	0.74	0.11	5.15	0.94	2.45	0.10	446.29	1.31	3206.6	2.6	84.4	0.9
	0.9229	275	0.37	0.09	4.43	1.08	2.04	0.13	396.57	1.19	2825.1	1.4	86.3	0.9
	0.9545	300	0.48	0.13	3.49	0.91	1.50	0.14	268.77	0.90	1965.0	2.3	85.5	1.7
	0.9736	325	0.43	0.10	3.26	0.94	0.59	0.16	162.23	0.71	1202.9	1.7	83.7	2.2
	0.9837	350	0.07	0.07	1.20	1.16	0.53	0.10	86.02	0.38	634.9	1.1	90.0	3.1
	0.9888	375	0.07	0.10	1.31	0.76	0.29	0.10	43.31	0.33	321.5	0.7	87.5	8.7
	0.9916	400	0.08	0.09	1.77	0.80	0.27	0.06	23.19	0.16	168.7	0.9	79.3	13.7
	0.9932	425	0.02	0.09	0.59	0.76	0.12	0.05	13.83	0.30	97.3	0.6	83.2	23.1
	0.9942	450	0.11	0.09	1.01	0.82	0.11	0.07	8.72	0.24	59.6	0.6	40.1	39.3
	0.9951	500	-0.08	0.11	0.67	0.75	0.28	0.07	7.66	0.16	47.8	0.7	116.9	49.3
	0.9959	575	0.16	0.12	0.68	0.93	0.38	0.08	6.93	0.13	55.3	0.6	16.5	63.9
	0.9964	650	0.15	0.08	1.02	0.55	0.49	0.11	4.46	0.20	45.8	0.4	7.2	68.9
	0.9970	800	0.24	0.12	1.79	1.06	1.46	0.09	4.47	0.15	71.4	0.6	2.6	100.4
	0.9975	1000	0.22	0.10	-0.75	0.91	1.51	0.09	4.31	0.17	83.5	0.4	52.3	83.7
	0.9985	1600	1.94	0.12	1.33	1.15	9.47	0.14	8.55	0.21	566.1	1.2	-9.1	55.7
	0.9994	2800	4.31	0.15	1.21	0.94	23.88	0.19	8.07	0.18	1539.2	1.4	382.0	58.5
	1.0000	4000	4.64	0.12	1.92	1.26	28.36	0.28	4.81	0.10	1769.9	2.4	839.3	61.5
mi81-n12a	J = 0.0094601 ± 0.0000302 Total gas age = 86.80 ± 0.28													
C-21 Kspar	F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
	0.0015	100	2.18	0.07	1.38	0.23	30.86	0.15	71.01	0.33	4757.3	2.1	788.4	4.4
	0.0077	200	2.96	0.12	2.84	0.35	57.00	0.29	287.63	0.51	9971.6	2.8	472.2	1.8
	0.0257	300	0.93	0.11	3.17	0.30	15.75	0.23	844.65	0.64	5796.8	2.9	108.3	0.6
	0.0569	400	0.38	0.08	7.01	0.22	8.01	0.21	1465.57	1.10	7353.5	3.3	82.4	0.3
	0.0940	500	0.26	0.09	7.71	0.48	5.48	0.20	1737.18	1.69	8079.5	2.1	77.0	0.3
	0.1276	600	0.40	0.11	6.78	0.37	4.77	0.21	1573.12	1.36	7243.0	4.9	75.7	0.4
	0.1597	700	0.30	0.12	3.73	0.16	4.95	0.31	1505.71	1.11	6985.5	1.6	76.5	0.4
	0.1850	800	0.28	0.10	2.87	0.25	2.83	0.21	1188.87	1.28	5379.1	2.1	74.5	0.4
	0.2180	1000	0.39	0.08	3.96	0.23	6.46	0.23	1546.13	0.96	7529.3	4.2	80.1	0.3
	0.2634	1400	0.51	0.08	6.84	0.25	5.95	0.23	2126.52	1.49	9974.4	4.4	77.2	0.2
	0.2974	1800	0.26	0.09	2.78	0.30	4.58	0.25	1593.11	1.18	7317.6	4.4	76.0	0.3
	0.3484	2400	0.43	0.08	4.42	0.23	10.50	0.28	2391.99	1.65	11491.8	3.5	79.3	0.2
	0.4381	3000	1.14	0.08	6.32	0.25	24.16	0.38	4206.59	2.27	21094.1	6.7	82.3	0.1
	0.7612	4000	3.76	0.08	12.41	0.27	92.08	0.65	15143.54	15.60	78183.5	14.4	84.8	0.1
	0.9636	4010	2.44	0.12	6.00	0.31	54.98	0.63	9489.14	3.31	49209.8	11.1	85.2	0.1
	1.0000	4015	0.48	0.10	2.37	0.30	10.80	0.27	1706.07	1.58	8917.5	7.2	85.7	0.3
mi81-n12b	J = 0.0094601 ± 0.0000302 Total gas age = 77.31 ± 0.26													
C-21 Kspar	F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
	0.0040	100	0.23	0.07	0.71	0.18	1.13	0.10	76.88	0.4	292.7	0.5	49.5	4.4
	0.0151	200	0.30	0.07	0.62	0.25	1.79	0.11	210.27	0.4	1006.6	1.5	73.1	1.7
	0.0421	300	0.23	0.09	0.82	0.21	1.41	0.07	512.84	0.8	2425.2	1.3	76.8	0.8
	0.0983	400	0.22	0.12	1.11	0.31	1.00	0.17	1067.82	1.1	4958.4	2.3	76.6	0.5
	0.1839	500	0.21	0.10	1.35	0.32	1.38	0.16	1624.63	1.6	7427.3	3.8	75.8	0.3
	0.2847	600	-0.05	0.08	0.85	0.31	1.66	0.20	1915.71	1.7	8690.8	3.7	75.9	0.2
	0.3892	700	0.05	0.06	0.91	0.36	1.51	0.14	1984.41	2.5	9103.1	4.3	76.5	0.2
	0.4917	800	0.05	0.10	0.54	0.30	1.50	0.21	1948.40	2.1	9071.9	4.7	77.6	0.3
	0.6272	1000	-0.03	0.07	0.97	0.34	2.90	0.18	2573.10	2.0	12213.0	4.1	79.3	0.1
	0.7904	1400	0.11	0.06	1.03	0.27	3.34	0.18	3100.52	2.1	14675.5	5.5	78.9	0.1
	0.8568	1800	0.05	0.10	0.42	0.24	1.29	0.16	1260.41	1.3	5688.7	2.6	75.3	0.4
	0.9312	2400	0.19	0.07	1.02	0.33	3.86	0.19	1414.31	1.0	6689.4	2.0	78.3	0.3
	0.9554	3000	0.09	0.08	0.68	0.28	0.77	0.13	460.07	1.0	2138.8	1.9	76.7	0.8
	1.0000	4000	0.17	0.09	0.59	0.28	1.97	0.10	846.36	0.7	4073.0	2.2	79.3	0.5

mi81-n13a J = 0.0096828 ± 0.0000177 Total gas age = 74.26 ± 0.25

CSE-22 36m
Adularia

F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
0.0071	100	24.55	0.19	2.87	0.36	13.80	0.14	60.81	0.28	7494.9	2.7	67.5	15.5
0.0523	200	12.16	0.16	20.22	0.40	18.33	0.18	389.67	0.71	5363.1	3.2	77.7	2.1
0.2049	300	2.15	0.07	54.64	0.65	5.43	0.24	1312.85	2.02	6854.1	2.7	80.9	0.3
0.3352	400	0.33	0.05	16.99	0.47	2.10	0.15	1121.02	0.90	5179.9	2.9	77.5	0.2
0.4288	500	0.06	0.04	8.92	0.36	1.01	0.06	805.92	1.22	3589.1	2.2	75.8	0.3
0.5063	600	0.09	0.06	16.22	0.45	0.72	0.11	667.22	0.44	2929.3	1.9	74.4	0.4
0.5776	700	0.07	0.07	35.44	0.46	0.56	0.12	613.02	0.94	2631.9	2.6	72.9	0.6
0.6385	800	0.14	0.08	33.95	0.54	0.71	0.07	524.34	1.19	2242.8	1.4	71.9	0.8
0.7178	1000	0.22	0.08	157.69	0.53	0.92	0.08	682.29	0.61	2913.7	2.1	71.5	0.6
0.8297	1400	0.61	0.07	37.99	0.49	1.40	0.15	963.57	0.51	4183.9	2.6	71.2	0.4
0.9113	1800	0.90	0.07	58.66	0.57	1.49	0.12	701.87	0.81	3150.9	2.6	70.4	0.5
0.9716	2400	1.20	0.10	79.77	0.95	1.83	0.11	519.20	0.85	2450.7	1.7	69.2	1.0
0.9883	3000	1.12	0.08	25.07	0.39	1.17	0.09	143.77	0.56	891.6	1.2	66.8	2.9
1.0000	4000	0.93	0.09	16.57	0.30	0.99	0.10	100.47	0.49	627.7	0.7	60.5	4.2

mi81-n13b J = 0.0096828 ± 0.0000177 Total gas age = 74.92 ± 2.11

CSE-22 36m
Adularia

F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
0.0010	100	2.17	0.09	0.28	0.23	0.71	0.10	0.92	0.11	656.6	1.0	251.0	424.7
0.0022	200	1.89	0.06	0.07	0.28	0.52	0.07	1.17	0.13	501.4	0.9	-1126.4	554.5
0.0038	300	1.33	0.10	0.43	0.17	0.53	0.07	1.46	0.14	392.5	0.9	-11.4	353.6
0.0055	400	1.58	0.13	0.48	0.15	0.65	0.07	1.58	0.10	518.5	1.0	493.7	326.0
0.0103	500	9.89	0.08	0.72	0.30	2.72	0.09	4.52	0.16	2936.6	1.7	50.9	91.7
0.0197	600	16.70	0.11	1.49	0.18	4.50	0.11	8.74	0.16	4932.1	1.4	-4.4	66.0
0.0450	700	11.79	0.22	4.71	0.41	3.42	0.10	23.69	0.17	3616.5	1.8	95.0	45.4
0.0939	800	0.72	0.07	8.38	0.29	0.49	0.10	45.75	0.18	429.2	0.8	81.1	7.0
0.2043	1000	0.11	0.05	5.89	0.38	0.18	0.08	103.29	0.49	553.6	0.7	85.8	2.3
0.4258	1400	0.12	0.06	6.33	0.25	0.15	0.11	207.17	0.49	963.9	1.2	76.6	1.4
0.6331	1800	0.26	0.10	3.68	0.25	0.21	0.09	193.90	0.55	880.3	0.8	70.9	2.5
0.8320	2400	0.11	0.09	1.74	0.18	0.19	0.10	185.97	0.33	858.4	1.1	76.0	2.4
0.9360	3000	0.26	0.10	1.45	0.25	0.11	0.11	97.35	0.28	481.3	1.2	71.2	5.2
1.0000	4000	0.31	0.12	1.74	0.22	0.29	0.09	59.83	0.33	336.2	0.6	70.3	9.6

mi81-n15a J = 0.0095617 ± 0.0000230 Total gas age = 69.98 ± 0.77

CSE-22 41m
Adularia

F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
0.0018	100	14.45	0.09	1.35	0.34	4.67	0.06	4.26	0.10	4176.3	1.6	-423.5	134.4
0.0027	200	4.42	0.13	1.81	0.27	1.86	0.10	2.25	0.10	1321.6	1.4	111.3	276.8
0.0041	300	6.01	0.14	2.10	0.28	2.47	0.08	3.26	0.12	1776.7	2.0	1.3	225.9
0.0061	400	6.56	0.15	4.72	0.36	2.86	0.09	4.72	0.16	1989.3	1.2	179.9	142.3
0.0102	500	6.16	0.08	11.76	0.51	2.73	0.08	9.63	0.15	1787.1	1.9	-61.2	46.6
0.0277	600	4.90	0.11	49.95	0.56	4.63	0.08	41.58	0.25	1562.3	1.9	47.0	13.5
0.0608	700	1.00	0.08	200.75	0.95	1.55	0.12	78.31	0.23	634.2	0.6	73.0	5.2
0.1037	800	0.31	0.08	187.28	1.20	0.49	0.09	101.69	0.38	562.4	1.2	78.1	4.0
0.1818	1000	0.19	0.07	176.59	0.44	0.37	0.06	185.13	0.44	920.0	0.9	78.8	1.8
0.3297	1400	0.44	0.10	164.71	0.51	0.37	0.12	350.60	0.65	1654.3	2.1	73.5	1.4
0.5054	1800	0.39	0.06	75.42	0.63	0.36	0.13	416.31	0.35	1853.4	1.8	70.6	0.7
0.7090	2400	0.62	0.06	11.32	0.38	0.62	0.11	482.52	0.65	2164.0	1.6	69.4	0.6
0.8658	3000	0.63	0.07	5.77	0.37	0.62	0.10	371.65	0.65	1721.3	1.1	69.9	0.9
1.0000	4000	0.86	0.07	10.79	0.40	0.89	0.09	318.00	0.59	1553.9	2.0	69.2	1.2

mi81-n15b J = 0.0095617 ± 0.0000230 Total gas age = 53.70 ± 1005.08

CSE-22 41m
Adularia

F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
0.2391	100	3.72	0.07	25.87	0.30	5.15	0.08	0.32	0.07	1063.3	1.1		34799.3
0.2146	200	0.12	0.07	0.44	0.30	-0.02	0.06	-0.03	0.09	-0.8	0.3	4383.2	4588.7
0.4580	300	-0.05	0.06	-0.13	0.22	-0.01	0.06	0.33	0.11	-1.9	0.4	610.2	662.6
0.4854	400	-0.02	0.05	0.16	0.29	0.04	0.15	0.04	0.08	1.6	0.3	1880.7	3715.3
0.5972	500	0.00	0.09	-0.53	0.28	0.02	0.04	0.15	0.10	-2.1	0.5	-193.6	3283.9
0.6001	600	-0.14	0.09	0.20	0.33	0.15	0.07	0.00	0.09	1.2	0.5	8394.8	41614.4
0.7344	700	-0.09	0.08	0.06	0.31	0.07	0.06	0.18	0.11	1.3	0.4	1674.0	1132.2
0.8126	800	-0.03	0.08	0.67	0.29	0.13	0.07	0.10	0.06	1.2	0.4	1244.5	1928.7
0.8643	1000	0.00	0.07	1.85	0.27	0.11	0.06	0.07	0.07	1.5	0.4	399.3	4125.8
0.8503	1400	-0.14	0.08	2.39	0.29	0.08	0.06	-0.02	0.13	2.8	0.4		13472.6
0.8431	1800	0.09	0.05	8.91	0.36	0.09	0.07	-0.01	0.10	3.6	0.4	5791.9	18068.7
0.8614	2400	0.16	0.07	18.55	0.35	-0.09	0.10	0.02	0.08	7.7	0.4		6426.9
0.9415	3000	0.05	0.07	2.89	0.26	-0.01	0.08	0.11	0.07	10.8	0.5		5559.9
1.0000	4000	0.12	0.07	6.08	0.25	0.06	0.09	0.08	0.08	27.3	0.5		27127.8

mi81-n17a	J = 0.0096804 ± 0.0000172 Total gas age = 74.60 ± 0.15													
C-00-43 Musc.	F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
	0.0004	200	0.43	0.06	0.19	0.33	0.26	0.10	12.58	0.18	130.1	0.7	3.9	26.1
	0.0024	400	0.61	0.06	0.64	0.35	0.44	0.09	63.08	0.26	378.8	1.0	54.2	4.5
	0.0119	600	0.93	0.08	0.26	0.40	0.57	0.11	304.94	0.69	1529.9	1.6	70.5	1.3
	0.0662	800	1.20	0.10	0.90	0.25	1.55	0.19	1738.22	1.98	7989.3	3.2	75.1	0.3
	0.4405	1000	2.03	0.05	2.03	0.40	9.85	0.69	11981.13	20.06	52756.4	9.8	74.5	0.1
	0.8795	1200	0.80	0.12	1.06	0.46	11.62	0.53	14055.02	16.19	61627.5	16.0	74.7	0.1
	0.9497	1400	0.06	0.10	0.01	0.29	1.54	0.17	2245.06	0.82	9801.0	3.4	74.5	0.2
	0.9739	1600	-0.06	0.10	0.15	0.25	0.60	0.21	774.96	1.47	3420.2	1.6	75.8	0.6
	0.9903	1800	0.02	0.11	0.02	0.29	0.51	0.08	526.62	1.03	2326.4	1.4	75.3	1.1
	0.9943	2000	-0.07	0.10	-0.03	0.25	0.03	0.08	126.47	0.30	573.1	0.8	80.1	3.8
	0.9948	2200	0.08	0.06	0.22	0.29	-0.01	0.08	17.18	0.23	77.4	0.7	53.8	18.2
	0.9991	2400	0.03	0.07	0.11	0.32	0.06	0.10	137.37	0.49	615.3	1.0	75.5	2.4
	0.9997	2600	-0.01	0.06	-0.04	0.25	-0.09	0.08	17.54	0.15	81.6	0.6	81.1	17.2
	0.9999	3000	-0.02	0.07	0.06	0.31	0.07	0.09	9.34	0.15	45.7	0.5	96.4	35.3
	1.0000	4000	-0.03	0.08	-0.32	0.38	-0.10	0.07	1.75	0.13	21.8	0.6	279.3	206.2
mi81-n17b	J = 0.0096804 ± 0.0000172 Total gas age = 73.65 ± 0.14													
C-00-43 Musc.	F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
	0.0007	200	0.25	0.07	-0.09	0.41	0.37	0.07	19.15	0.26	120.0	0.7	41.9	19.6
	0.0043	400	0.24	0.08	0.90	0.38	0.36	0.08	107.41	0.29	492.8	1.0	67.2	3.8
	0.0145	600	0.33	0.09	0.38	0.42	0.29	0.06	299.22	0.81	1366.5	1.3	72.6	1.5
	0.0565	800	0.54	0.08	0.53	0.41	1.44	0.19	1231.84	1.74	5461.7	1.8	73.6	0.3
	0.3167	1000	0.26	0.09	0.53	0.36	6.16	0.34	7635.22	3.31	33278.5	6.6	74.4	0.1
	0.8118	1200	0.36	0.08	2.36	0.46	12.00	0.45	14530.44	11.99	62401.4	15.1	73.4	0.1
	0.9105	1400	0.16	0.05	0.33	0.34	2.42	0.18	2894.36	0.72	12442.4	5.0	73.3	0.1
	0.9452	1600	0.00	0.08	0.01	0.37	0.97	0.17	1020.24	0.49	4427.0	2.5	74.3	0.4
	0.9746	1800	0.18	0.07	0.27	0.31	0.74	0.15	861.46	0.90	3787.9	2.9	74.2	0.4
	0.9844	2000	0.13	0.05	0.26	0.27	0.41	0.10	287.73	0.43	1280.5	1.3	73.9	0.9
	0.9945	2200	0.05	0.05	0.12	0.28	0.00	0.09	296.96	0.36	1311.1	1.3	74.6	0.9
	0.9989	2400	0.10	0.08	-0.55	0.34	-0.04	0.09	129.44	0.25	595.6	1.0	74.9	3.2
	0.9994	2600	0.04	0.07	-0.37	0.23	-0.01	0.08	13.78	0.25	64.1	0.6	64.4	24.1
	0.9998	3000	0.04	0.06	-0.01	0.21	-0.05	0.06	13.78	0.16	67.4	0.5	70.6	20.0
	1.0000	4000	0.41	0.07	-0.06	0.27	-0.03	0.07	4.45	0.14	126.1	0.8	23.8	80.8
mi81-n18a	J = 0.0096353 ± 0.0000209 Total gas age = 79.05 ± 0.22													
C-00-24B Musc.	F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
	0.0212	200	0.60	0.08	0.25	0.21	0.95	0.09	235.03	0.51	1234.9	1.1	76.5	1.8
	0.1309	400	0.50	0.08	2.06	0.36	1.57	0.09	1215.03	0.85	5876.6	4.0	80.1	0.4
	0.4249	600	0.27	0.08	1.34	0.35	3.22	0.28	3258.23	2.46	15181.9	4.3	78.8	0.1
	0.6469	800	0.23	0.05	1.01	0.21	2.46	0.24	2460.66	2.41	11396.0	4.0	78.3	0.1
	0.7157	900	-0.01	0.06	0.34	0.30	0.75	0.15	761.79	0.93	3542.8	1.3	79.2	0.4
	0.7734	1000	-0.08	0.08	-0.17	0.31	0.69	0.08	639.58	1.27	2972.1	2.2	79.6	0.6
	0.8385	1100	-0.02	0.08	0.22	0.44	0.54	0.09	721.22	1.10	3350.3	2.4	79.1	0.5
	0.8889	1200	0.03	0.08	0.01	0.35	0.79	0.10	558.59	0.62	2600.9	2.4	78.9	0.7
	0.9676	1400	0.04	0.05	0.23	0.32	1.27	0.13	872.14	1.01	4034.1	2.7	78.4	0.3
	0.9956	1600	-0.01	0.07	0.29	0.35	0.37	0.10	310.52	0.64	1436.9	1.5	78.9	1.2
	0.9977	1800	0.05	0.07	0.15	0.37	0.12	0.08	23.44	0.12	112.4	0.7	70.8	14.7
	0.9988	2000	-0.03	0.07	0.31	0.36	0.05	0.08	11.94	0.14	57.1	0.7	92.8	27.9
	0.9992	2200	-0.10	0.09	-0.35	0.39	-0.03	0.09	4.56	0.11	25.3	0.5	198.3	92.7
	0.9997	2400	-0.10	0.10	0.00	0.34	-0.02	0.07	4.92	0.11	25.8	0.5	188.5	97.7
	0.9998	2600	-0.06	0.09	0.34	0.40	-0.03	0.07	1.12	0.17	10.7	0.7	383.9	321.3
	1.0000	4000	0.07	0.08	-0.41	0.34	0.01	0.07	2.46	0.13	64.0	0.5	288.8	147.0
mi81-n20a	J = 0.0094089 ± 0.0000370 Total gas age = 76.57 ± 0.33													
C-00-29b Alunite	F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
	0.0001	50	0.43	0.08	0.03	0.29	7.17	0.16	2.00	0.09	147.7	0.6	164.4	177.4
	0.0008	100	2.56	0.09	1.23	0.31	24.74	0.11	10.45	0.15	759.2	1.6	3.5	42.8
	0.0019	150	3.49	0.07	1.45	0.29	22.91	0.19	16.83	0.15	1101.9	1.4	71.0	21.3
	0.0034	175	2.65	0.09	1.73	0.24	13.99	0.19	21.69	0.16	899.5	0.8	88.7	19.0
	0.0055	190	2.00	0.09	2.23	0.23	7.61	0.13	32.00	0.22	731.5	1.6	73.2	13.2
	0.0091	200	1.49	0.08	2.32	0.20	5.22	0.10	54.49	0.36	717.6	1.5	84.7	7.3
	0.0169	210	1.32	0.09	3.92	0.27	4.63	0.12	118.47	0.30	1007.2	1.7	86.1	3.5
	0.0333	220	1.10	0.09	6.07	0.27	3.46	0.14	248.28	0.43	1673.9	1.8	90.0	1.8
	0.0683	230	1.34	0.10	12.42	0.26	3.52	0.18	532.15	0.95	3131.5	2.8	85.2	0.9
	0.1357	240	1.55	0.07	20.38	0.29	4.05	0.12	1021.28	0.92	5475.1	3.9	81.5	0.4
	0.2442	250	1.78	0.10	33.67	0.56	5.65	0.19	1645.73	1.80	8320.8	2.9	78.7	0.3
	0.4390	275	2.26	0.09	63.62	0.39	10.96	0.21	2953.36	1.68	14346.0	5.6	76.9	0.2
	0.6961	300	2.17	0.08	101.42	0.25	16.51	0.31	3897.96	3.04	18562.2	3.9	76.4	0.1
	0.9147	350	2.24	0.12	159.35	0.40	21.88	0.22	3314.45	1.79	15853.8	4.5	76.2	0.2
	0.9619	400	1.94	0.09	43.45	0.37	9.81	0.11	715.65	1.33	3786.0	3.1	74.6	0.7
	0.9802	450	0.80	0.06	14.37	0.17	5.15	0.09	278.36	0.38	1405.4	2.1	69.9	1.1

0.9853	500	0.47	0.08	6.54	0.27	3.09	0.15	77.27	0.39	409.4	2.2	58.7	4.9
0.9874	600	0.51	0.05	6.78	0.35	3.59	0.16	30.99	0.22	206.1	1.0	30.7	7.4
0.9884	700	0.41	0.07	4.45	0.20	3.33	0.08	15.63	0.17	100.5	0.7	-21.1	21.7
0.9891	800	0.34	0.06	3.35	0.23	6.55	0.10	10.91	0.16	75.8	0.6	-37.3	28.9
0.9904	1000	0.52	0.06	4.11	0.28	95.07	0.25	18.80	0.20	148.9	0.6	-3.6	15.1
0.9926	1600	1.69	0.07	5.06	0.36	494.56	0.93	33.78	0.26	532.2	1.3	16.6	10.0
0.9967	2800	1.86	0.10	6.11	0.20	22.13	0.23	62.48	0.37	621.0	1.7	19.6	7.9
1.0000	4000	13.10	0.20	9.64	0.29	101.92	0.29	49.69	0.29	4038.0	2.5	56.3	19.4

mi81-n20b J = 0.0094089 ± 0.0000370 Total gas age = 76.58 ± 0.31

C-00-29b
Alunite

F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
0.0000	50	-0.04	0.08	0.11	0.33	3.40	0.11	1.23	0.15	26.3	0.6	463.7	243.6
0.0006	100	1.15	0.12	0.93	0.35	36.53	0.26	15.90	0.18	399.8	0.9	63.8	36.7
0.0016	150	2.01	0.09	2.38	0.33	36.97	0.14	25.91	0.22	652.4	1.0	38.7	16.6
0.0026	175	1.51	0.10	2.37	0.33	20.31	0.17	26.51	0.13	513.7	1.1	42.7	18.1
0.0039	190	1.17	0.06	2.49	0.40	11.49	0.13	35.44	0.21	436.4	0.5	42.9	8.4
0.0061	200	0.78	0.09	3.21	0.34	7.86	0.15	56.29	0.29	477.9	0.9	72.8	7.5
0.0100	210	0.62	0.05	4.65	0.32	5.86	0.12	105.71	0.25	713.9	0.9	83.2	2.1
0.0177	220	0.49	0.15	6.38	0.36	4.37	0.11	203.48	0.38	1226.5	1.8	87.9	3.5
0.0353	230	0.62	0.07	13.43	0.28	3.99	0.21	469.58	0.52	2637.0	1.7	86.5	0.7
0.0618	240	0.55	0.06	17.29	0.43	2.87	0.16	703.12	0.66	3745.6	3.6	84.5	0.4
0.1047	250	0.56	0.10	27.20	0.41	2.98	0.21	1141.80	0.88	5817.6	4.1	82.1	0.4
0.1956	275	1.10	0.05	57.19	0.66	5.29	0.15	2416.95	1.85	11814.5	6.0	78.9	0.1
0.3553	300	1.53	0.05	104.21	0.61	9.61	0.36	4247.99	2.78	20184.2	3.4	77.2	0.1
0.6370	350	1.75	0.08	201.08	0.90	21.23	0.49	7493.04	1.94	34934.2	12.0	76.3	0.1
0.8802	400	1.69	0.11	231.68	0.84	25.54	0.25	6467.63	3.49	30082.9	7.2	76.0	0.1
0.9657	450	2.83	0.12	105.42	0.74	17.01	0.25	2274.83	1.36	11102.3	4.0	75.0	0.3
0.9855	500	1.49	0.10	30.31	0.68	8.36	0.18	524.98	0.65	2645.1	1.8	69.9	0.9
0.9906	600	0.56	0.11	17.71	0.44	11.94	0.09	137.59	0.43	646.3	1.3	58.4	3.8
0.9920	700	0.37	0.10	10.41	0.40	33.63	0.23	37.51	0.23	190.3	0.9	36.1	13.5
0.9927	800	0.22	0.10	7.01	0.37	106.69	0.38	18.15	0.18	116.3	0.7	46.9	26.8
0.9936	1000	0.73	0.07	7.39	0.30	483.41	0.89	23.94	0.25	232.4	0.9	12.6	14.7
0.9951	1600	1.40	0.09	6.28	0.38	666.79	1.00	40.23	0.32	498.3	0.8	35.9	11.5
0.9983	2800	1.36	0.11	6.00	0.41	53.10	0.31	83.86	0.42	500.1	1.2	19.6	6.6
1.0000	4000	6.89	0.14	5.85	0.24	49.44	0.34	45.35	0.26	2246.0	1.6	77.1	14.9

mi82-7 Mass = 0.0025 J = 0.0091648 ± 0.0000173 Total gas age = 75.54 ± 0.15 Reten age = 81.21 ± 0.16

C-00-13A Illite

F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
0.0720	0	29.99	0.19	2.21	0.37	34.35	0.36	4701.83	2.52	9060.3	12.1	0.7	0.2
0.0752	50	0.80	0.08	0.40	0.27	1.91	0.13	208.30	0.44	362.5	1.3	10.1	1.8
0.0795	75	0.64	0.12	0.08	0.41	1.26	0.14	284.78	0.76	803.2	0.8	35.3	2.1
0.0850	100	0.47	0.11	0.67	0.18	1.03	0.16	359.49	0.53	1274.4	1.3	51.5	1.4
0.0998	150	0.98	0.11	0.86	0.29	1.57	0.12	966.01	0.85	4084.0	2.8	63.8	0.6
0.1222	200	0.83	0.11	1.09	0.28	1.83	0.21	1460.91	1.59	6837.5	2.4	73.1	0.4
0.1679	300	1.25	0.10	1.63	0.29	3.73	0.18	2990.65	2.23	14713.2	2.4	77.6	0.2
0.2167	400	1.14	0.12	1.28	0.32	3.21	0.37	3183.85	1.57	15982.3	6.3	79.5	0.2
0.2620	500	1.24	0.10	1.07	0.29	2.76	0.31	2960.95	2.87	15005.0	6.2	79.9	0.2
0.3020	600	0.84	0.06	1.25	0.25	2.30	0.26	2617.68	2.42	13516.2	5.3	81.9	0.1
0.3397	700	0.77	0.06	1.12	0.23	1.83	0.27	2457.63	1.65	12742.8	5.8	82.3	0.1
0.3785	800	0.82	0.07	2.19	0.46	1.78	0.26	2536.95	2.16	13229.5	4.8	82.7	0.2
0.4296	1000	0.92	0.09	1.93	0.29	2.89	0.42	3341.65	3.21	17444.0	5.7	83.0	0.2
0.4654	1100	0.74	0.14	1.39	0.19	1.69	0.25	2335.41	2.23	12097.7	5.8	82.2	0.3
0.4935	1200	0.66	0.08	1.33	0.26	1.38	0.15	1838.24	1.40	9512.4	3.9	81.9	0.2
0.5329	1400	1.02	0.09	2.53	0.36	2.38	0.28	2575.35	2.19	13313.5	6.7	81.7	0.2
0.5735	1600	0.87	0.09	2.42	0.33	2.97	0.12	2649.16	1.71	13734.1	5.9	82.2	0.2
0.6430	2000	1.36	0.11	2.31	0.28	3.38	0.32	4544.15	4.14	23700.8	8.9	82.8	0.1
0.7255	2500	1.86	0.09	3.23	0.39	4.79	0.41	5387.54	3.53	27985.3	7.0	82.3	0.1
0.7961	3000	1.97	0.12	3.44	0.38	4.12	0.24	4617.43	2.10	24099.9	9.3	82.3	0.1
0.8948	4000	3.71	0.14	3.51	0.34	7.18	0.47	6446.82	3.68	34682.4	10.8	84.1	0.1
1.0000	4010	2.05	0.12	5.29	0.42	7.76	0.27	6872.86	4.16	36893.2	11.2	85.3	0.1

mi82-8 Mass = 0.0017 J = 0.0091778 ± 0.0000182 Total gas age = 76.69 ± 0.21 Retenage = 80.49 ± 0.21

C-00-30B Illite

F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
0.0470	0	17.87	0.19	1.22	0.66	6.98	0.19	702.70	1.29	5187.6	9.8	-2.2	1.3
0.0491	50	0.24	0.08	0.26	0.36	0.35	0.08	31.16	0.17	62.0	0.8	-4.2	13.2
0.0526	75	0.20	0.09	0.10	0.16	0.74	0.10	52.42	0.43	133.9	1.3	23.0	8.0
0.0561	100	0.37	0.08	0.07	0.31	0.70	0.09	51.71	0.44	166.4	1.0	18.0	7.7
0.0636	150	0.52	0.12	0.87	0.27	1.93	0.08	111.94	0.42	402.7	1.1	36.3	5.1
0.0744	200	0.92	0.12	1.05	0.24	2.64	0.12	162.45	0.71	623.9	1.4	35.4	3.6
0.1089	300	1.42	0.08	1.74	0.19	7.04	0.13	514.30	0.96	1932.2	2.2	48.1	0.8
0.1714	400	1.72	0.14	3.00	0.29	7.41	0.21	934.83	1.19	3817.9	2.1	57.7	0.7
0.2661	500	1.24	0.08	4.29	0.43	6.71	0.19	1414.83	1.56	7014.2	4.3	76.2	0.3

0.3563	600	0.71	0.10	4.03	0.19	3.75	0.19	1348.48	1.51	7301.3	4.1	85.1	0.4		
0.4206	700	0.39	0.09	2.15	0.39	2.07	0.20	960.55	0.90	5274.2	3.3	86.8	0.5		
0.4668	800	0.32	0.14	1.85	0.19	2.30	0.10	689.81	0.53	3752.9	2.4	85.7	1.0		
0.5323	1000	0.91	0.09	2.96	0.29	5.90	0.19	979.59	1.38	5522.3	2.9	86.7	0.5		
0.5713	1100	0.13	0.08	1.31	0.28	1.06	0.16	582.94	0.99	3258.7	1.7	89.2	0.6		
0.6087	1200	0.05	0.08	1.46	0.27	0.42	0.16	557.90	0.54	3142.0	1.9	90.5	0.7		
0.6723	1400	0.25	0.08	2.50	0.41	0.99	0.17	950.28	0.74	5469.8	2.9	91.6	0.4		
0.7740	1600	0.34	0.07	3.18	0.45	0.79	0.21	1520.31	1.11	8696.9	2.5	91.3	0.2		
0.9659	2000	0.61	0.07	5.94	0.35	3.86	0.23	2867.56	3.18	15654.6	6.5	87.2	0.2		
0.9829	2500	0.96	0.08	4.58	0.34	5.00	0.14	253.29	0.56	1150.6	1.3	55.8	1.5		
0.9903	3000	1.04	0.07	4.06	0.43	5.28	0.15	110.70	0.40	605.7	1.0	44.2	3.0		
1.0000	4000	2.71	0.10	10.25	0.33	13.16	0.16	145.33	0.65	1261.8	1.6	51.7	3.2		
mi82-9		Mass = 0.0020 J = 0.0091218 ± 0.0000222 Total gas age = 82.00 ± 0.20 Reten age = 82.62 ± 0.20													
C-00-21B Illite		F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
0.0076	0	8.03	0.21	5.56	0.54	5.62	0.12	609.50	1.24	2323.1	9.3	-1.3	1.7		
0.0077	50	0.02	0.07	0.37	0.32	0.14	0.09	8.88	0.20	23.6	1.0	33.6	36.6		
0.0080	75	0.13	0.06	0.03	0.38	0.09	0.10	23.34	0.35	16.7	0.8	-15.0	13.3		
0.0081	100	-0.09	0.07	-0.62	0.32	0.01	0.09	9.83	0.23	7.7	0.9	56.0	35.9		
0.0085	150	0.13	0.05	0.52	0.28	0.04	0.08	30.59	0.36	34.7	0.9	-1.8	8.1		
0.0090	200	0.14	0.08	-0.15	0.40	0.08	0.08	44.36	0.26	69.5	1.1	10.6	8.2		
0.0107	300	0.17	0.07	0.60	0.38	0.49	0.09	135.64	0.60	368.1	1.3	38.3	2.6		
0.0131	400	0.28	0.05	1.66	0.46	0.66	0.12	195.62	0.75	857.0	1.4	64.0	1.2		
0.0163	500	0.26	0.07	1.28	0.38	0.90	0.11	256.62	0.57	1111.3	1.1	65.2	1.3		
0.0195	600	0.24	0.07	0.92	0.46	0.34	0.12	256.50	0.78	1144.8	1.3	67.7	1.2		
0.0277	700	0.19	0.08	1.81	0.30	1.18	0.13	661.17	1.02	3127.2	1.4	74.9	0.6		
0.0458	800	0.01	0.06	4.02	0.31	1.33	0.17	1457.38	1.45	7024.2	4.2	77.6	0.2		
0.0760	1000	0.08	0.09	6.29	0.32	2.17	0.26	2439.34	1.11	11890.8	6.4	78.3	0.2		
0.1058	1100	0.16	0.11	6.74	0.33	2.03	0.27	2395.62	2.14	11736.0	3.0	78.6	0.2		
0.1353	1200	0.04	0.06	6.57	0.48	1.40	0.24	2377.46	1.18	11735.0	5.3	79.4	0.1		
0.2011	1400	0.21	0.14	14.70	0.53	3.60	0.27	5308.04	2.27	26484.2	5.7	80.1	0.1		
0.2794	1600	0.14	0.14	16.53	0.53	3.24	0.37	6312.89	3.04	32028.9	6.4	81.5	0.1		
0.4369	2000	0.58	0.14	34.05	0.44	8.72	0.49	12687.64	3.23	65503.1	11.0	82.8	0.1		
0.8193	2500	1.96	0.15	174.41	1.09	23.73	0.62	30826.48	17.07	161674.8	28.2	84.0	0.1		
0.9709	3000	1.24	0.13	391.42	2.07	15.11	0.52	12220.16	6.41	65344.6	10.4	85.4	0.1		
1.0000	4000	1.26	0.14	902.92	2.23	7.79	0.41	2343.01	2.24	12841.4	3.1	85.5	0.3		
mi82-10		Mass = 0.0007 J = 0.0091278 ± 0.0000315 Total gas age = 77.91 ± 0.53 Reten age = 78.91 ± 0.52													
C-00-24A Illite		F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
0.0063	0	8.32	0.11	0.42	0.41	2.63	0.17	25.24	0.37	2328.7	7.4	-87.6	22.4		
0.0064	50	0.16	0.06	-0.22	0.32	-0.02	0.04	0.51	0.10	7.1	0.4	-2069.5	2058.0		
0.0066	75	0.02	0.07	0.31	0.28	0.09	0.09	0.65	0.11	10.6	0.7	91.8	512.3		
0.0068	100	0.03	0.11	0.14	0.21	-0.06	0.09	0.77	0.09	11.8	0.6	72.3	697.7		
0.0073	150	0.09	0.06	-0.75	0.36	0.19	0.09	2.37	0.08	32.6	0.9	38.3	113.1		
0.0080	200	0.09	0.10	0.07	0.27	0.00	0.10	2.61	0.13	32.4	0.7	36.6	175.7		
0.0090	300	0.10	0.08	0.20	0.28	-0.06	0.09	3.87	0.12	46.6	0.8	68.9	100.3		
0.0115	400	0.32	0.06	0.42	0.31	0.37	0.08	10.03	0.17	123.3	0.8	46.6	30.2		
0.0199	500	0.61	0.10	0.39	0.33	0.50	0.09	33.88	0.27	367.4	1.0	88.7	13.3		
0.0326	600	0.66	0.08	1.25	0.39	0.33	0.08	51.26	0.30	437.5	1.1	76.2	7.1		
0.0508	700	0.68	0.06	1.88	0.25	0.26	0.10	72.87	0.43	530.5	0.7	73.1	4.2		
0.0764	800	0.63	0.07	1.61	0.26	0.39	0.12	103.26	0.28	671.1	1.2	75.8	3.1		
0.1351	1000	0.76	0.12	3.71	0.20	0.58	0.12	235.87	0.67	1398.8	1.8	80.1	2.4		
0.1889	1100	0.48	0.07	1.73	0.26	0.40	0.12	216.24	0.47	1192.3	1.5	78.3	1.5		
0.2388	1200	0.31	0.07	1.38	0.26	0.33	0.11	200.67	0.59	1068.9	1.5	78.4	1.7		
0.3252	1400	0.32	0.10	1.11	0.34	0.47	0.09	347.50	0.95	1816.4	1.8	79.7	1.4		
0.4089	1600	0.32	0.07	0.52	0.20	0.16	0.10	336.48	0.78	1741.3	2.3	78.9	1.1		
0.5735	2000	0.47	0.07	1.22	0.27	0.25	0.16	661.85	0.94	3392.8	2.7	79.2	0.5		
0.7030	2500	0.18	0.10	0.63	0.20	0.35	0.12	520.57	1.02	2661.3	1.0	80.6	0.9		
0.8052	3000	0.21	0.07	0.47	0.23	0.26	0.07	410.70	0.59	2104.3	1.9	80.1	0.8		
0.9472	4000	0.37	0.09	0.79	0.23	0.47	0.14	571.11	1.18	2904.7	3.1	78.8	0.7		
1.0000	4010	0.83	0.08	0.09	0.20	0.58	0.07	212.30	1.26	1277.2	8.1	78.4	1.9		
mi82-11		Mass = 0.0005 J = 0.0093113 ± 0.0000247 Total gas age = 79.75 ± 0.36													
C-00-31A Illite		F39	Power	Vol36	±	Vol37	±	Vol38	±	Vol39	±	Vol40	±	Age (Ma)	±
0.0007	50	0.18	0.14	-0.17	0.38	0.13	0.09	5.83	0.15	18.7	0.7	-99.0	123.2		
0.0019	75	0.22	0.13	-0.48	0.32	0.06	0.08	9.90	0.16	31.2	0.8	-56.6	67.3		
0.0035	100	0.27	0.15	-0.01	0.35	-0.01	0.09	12.83	0.21	43.3	0.6	-49.2	58.5		
0.0079	150	0.45	0.14	-0.41	0.32	0.20	0.08	36.58	0.22	134.3	0.7	0.5	18.5		
0.0132	200	0.41	0.13	0.40	0.33	0.26	0.09	44.37	0.32	188.2	0.7	25.6	14.3		
0.0283	300	0.58	0.13	-0.47	0.37	0.50	0.09	124.68	0.41	595.2	0.9	56.4	5.2		
0.0526	400	0.45	0.09	0.05	0.22	0.65	0.09	200.65	0.60	933.4	1.4	65.9	2.2		
0.0892	500	0.51	0.09	0.54	0.24	0.52	0.14	303.17	0.87	1321.8	1.0	63.8	1.5		
0.1427	600	0.23	0.08	0.64	0.25	0.63	0.15	441.70	1.05	1944.5	1.4	70.0	0.9		

0.2161	700	0.24	0.12	0.45	0.18	0.86	0.08	607.48	1.01	2861.6	2.1	75.6	0.9
0.2989	800	0.29	0.09	1.03	0.20	0.56	0.18	684.67	1.15	3399.5	3.5	79.5	0.7
0.4343	1000	0.32	0.07	1.37	0.27	1.26	0.16	1119.47	0.61	5800.8	4.5	83.7	0.3
0.5287	1100	0.36	0.08	1.48	0.28	0.60	0.13	780.89	0.98	4116.4	3.2	84.3	0.5
0.6037	1200	0.14	0.08	1.08	0.30	0.38	0.16	619.97	0.84	3283.7	1.4	85.8	0.6
0.6940	1400	0.20	0.12	0.96	0.43	0.39	0.11	746.75	1.26	3986.7	2.6	86.3	0.8
0.7679	1600	0.22	0.07	0.35	0.22	0.55	0.11	611.27	1.29	3272.4	2.4	86.0	0.6
0.8454	2000	0.21	0.09	0.78	0.33	0.52	0.14	640.72	0.85	3398.7	2.8	85.4	0.7
0.9071	2500	0.23	0.13	0.67	0.46	0.84	0.17	509.88	0.99	2690.0	2.3	84.4	1.2
0.9470	3000	0.17	0.07	0.22	0.24	0.70	0.13	330.03	1.25	1723.9	1.0	83.2	1.0
0.9990	4000	0.45	0.11	0.35	0.32	0.65	0.13	430.01	1.18	2208.2	1.8	79.3	1.3
1.0000	4010	0.28	0.10	0.02	0.24	0.07	0.06	8.60	0.15	73.4	0.5	-15.6	60.8
