

Appendix 3. $^{40}\text{Ar}/^{39}\text{Ar}$ analytical data for cryptomelane sample FZ-2.

ID	Power (Watts)	$^{40}\text{Ar}/^{39}\text{Ar}$	$^{37}\text{Ar}/^{39}\text{Ar}$	$^{36}\text{Ar}/^{39}\text{Ar}$ ($\times 10^{-3}$)	$^{39}\text{Ar}_K$ ($\times 10^{-15}$ mol)	K/Ca	$^{40}\text{Ar}^*$ (%)	^{39}Ar (%)	Age (Ma)	$\pm 1s$ (Ma)
FZ-2, crypt/Roman, 7.35 mg, J=0.0004809\pm0.02%, IC=1.025\pm0.001, NM-257F, Lab#=61674-03										
X A	17	491.5	0.2709	1649.9	0.076	1.9	0.8	1.2	3.45	0.89
X B	18	195.0	0.2227	648.3	0.165	2.3	1.8	3.8	3.01	0.39
X C	18	153.7	0.2136	503.5	0.176	2.4	3.2	6.5	4.29	0.31
X D	18	97.23	0.1895	311.7	0.247	2.7	5.3	10.4	4.51	0.20
X E	19	63.27	0.2133	196.6	0.359	2.4	8.2	16.0	4.55	0.14
X F	19	38.01	0.1995	110.8	0.424	2.6	13.9	22.6	4.65	0.10
G	20	24.55	0.1834	63.93	0.680	2.8	23.1	33.2	4.98	0.06
H	20	22.36	0.1909	57.23	0.602	2.7	24.4	42.6	4.80	0.06
I	20	19.18	0.2009	45.96	0.637	2.5	29.2	52.6	4.93	0.05
J	21	17.53	0.1997	40.93	0.702	2.6	31.1	63.6	4.79	0.05
K	22	14.46	0.1909	30.15	1.283	2.7	38.5	83.6	4.89	0.03
L	23	12.99	0.2061	25.33	1.047	2.5	42.5	100.0	4.85	0.03
Integrated age $\pm 2s$			n=12		6.40	2.6		K2O=0.70	4.74	0.05
Plateau $\pm 2s$		steps G-L	n=6	MSWD=2.14	4.95	2.6 ± 0.2		77.4	4.87	0.05
Isochron $\pm 2s$		steps A-L	n=12	MSWD=2.32		$^{40}\text{Ar}/^{36}\text{Ar}= 293.7 \pm 1.1$			4.92	0.06

Notes:

Age Calculations:

Isotopic ratios corrected for blank, radioactive decay, and mass discrimination, not corrected for interfering reactions.

Errors quoted for individual analyses include analytical error only, without interfering reaction or J uncertainties.

Integrated age calculated by summing isotopic measurements of all steps.

Integrated age error calculated by quadratically combining errors of isotopic measurements of all steps.

Plateau age is inverse-variance-weighted mean of selected steps.

Plateau age error is inverse-variance-weighted mean error (Taylor, 1982) times root MSWD where MSWD>1.

Plateau error is weighted error of Taylor (1982).

X symbol preceding sample ID denotes analyses excluded from plateau age calculations.

Weight percent K₂O calculated from ^{39}Ar signal, sample weight, and instrument sensitivity.

Sample preparation and irradiation:

Minerals separated with sieving, handpicking and dilute HCl and HF treatments.

Samples in NM-257 irradiated in a machined Aluminum tray for 2 hours in C.T. position, USGS TRIGA, Denver, Colorado.

Neutron flux monitor Fish Canyon Tuff sanidine (FC-2). Assigned age = 28.201 Ma (Kuiper et al., 2008).