

APPENDIX 1

⁴⁰Ar-³⁹Ar analytical data from step-heating experiments

Zarobiny-1 (1) (J = 0.0034203 ± 3.500000e-6):											
Step	Ca/K	Cl/K	³⁶ Ar- ³⁹ Ar	% ³⁶ Ar(Ca)	⁴⁰ Ar- ³⁹ Ar	Mol ³⁹ Ar	% Step	Cum. [%]	% ⁴⁰ Ar*	Age [Ma]	± Age
A	30.89366	0.0281	0.515537	0.7	63.43784	0.013	1.4	1.4	29.4	354.2657	15.19441
B	36.91872	0.07817	0.479487	0.9	41.17854	0.0133	1.4	2.8	22.5	237.7186	13.3893
C	48.54784	0.06264	0.475817	1.2	45.15428	0.0159	1.7	4.5	24.3	259.0951	12.28101
D	49.98133	0.04794	0.35234	1.7	64.702	0.0243	2.6	7.1	38.4	360.6641	8.98932
E	53.66284	0.04605	0.300023	2.1	69.70594	0.025	2.7	9.8	44.1	385.7704	8.33486
F	40.73235	0.01228	0.218384	2.2	67.90346	0.0453	4.9	14.7	51.5	376.767	4.95765
G	37.53943	0.01018	0.172879	2.5	71.09069	0.0569	6.1	20.8	58.5	392.6568	3.89309
H	42.29161	0.00491	0.164415	3	71.31306	0.0582	6.3	27.1	59.9	393.7602	4.05575
I	40.17978	0.00461	0.120478	3.9	71.73834	0.0674	7.2	34.3	67.4	395.8686	3.41224
•J	47.50674	0.00181	0.127897	4.3	74.74451	0.0746	8	42.3	67.1	410.7023	2.83672
•K	49.92964	0.01381	0.100092	5.8	76.22092	0.0791	8.5	50.8	72.9	417.9431	2.77682
•L	48.09992	0.00203	0.091056	6.1	75.32327	0.0884	9.5	60.3	74.6	413.5442	2.76819
•M	36.73456	0.01104	0.067782	6.3	74.63208	0.11	11.8	72.1	79.7	410.1497	2.1354
•N	26.88041	0.00964	0.046711	6.7	74.5903	0.0915	9.8	82	85.2	409.9443	2.41615
O	21.96615	0.00474	0.035679	7.2	71.63691	0.0859	9.2	91.2	87.9	395.366	2.36694
P	23.34544	0.00704	0.034506	7.9	72.74903	0.082	8.8	100	88.5	400.8694	2.27628
Integral age =										397	2
(•) Plateau age =			MSWD = 1.6. ρ = 0.16. steps J–N					47.7		412	2
Zarobiny-1 (2) (J = 0.0034203 ± 3.500000e-6):											
A	47.48177	0.0897	1.25775	0.4	54.9938	0.0084	0.9	0.9	12.8	310.93529	27.10766
B	54.45268	0.12055	0.578424	1.1	63.95998	0.0138	1.5	2.5	27.1	356.91114	13.86143
C	35.36324	0.04957	0.250393	1.6	37.62056	0.0276	3.1	5.6	33.8	218.37119	7.18618
D	46.31024	0.03939	0.223528	2.4	52.80917	0.0359	4	9.6	44.7	299.55338	5.29393
E	71.7407	0.02164	0.234159	3.6	68.19898	0.033	3.7	13.3	50	378.2462	6.20991
F	55.87265	0.00682	0.185	3.5	69.78194	0.0523	5.9	19.2	56.5	386.14899	4.32588
G	67.29435	0.00586	0.136493	5.7	77.49137	0.0609	6.8	26	66.6	424.1506	3.87363
H	59.3541	0.00367	0.115833	6	79.07331	0.0669	7.5	33.5	70.7	431.8504	3.36445
I	45.80481	0.0062	0.092623	5.8	77.82823	0.0807	9	42.5	74.8	425.79298	3.05267
J	35.83951	0.00582	0.069857	6	80.07503	0.0776	8.7	51.2	80.3	436.70908	2.87192
•K	29.87226	0.00073	0.063257	5.5	74.13685	0.0803	9	60.2	80.6	407.71367	2.71448
•L	26.97003	0.00078	0.045742	6.9	76.09665	0.079	8.9	69.1	85.7	417.33477	2.58864
•M	27.75444	0.00485	0.053031	6.1	75.2553	0.0627	7	76.1	83.5	413.21069	3.29067
•N	23.57816	0.0073	0.039294	7	76.33966	0.0623	7	83.1	87.5	418.52419	2.96213
•O	24.8361	0.01368	0.039465	7.3	75.50518	0.0766	8.6	91.7	87.4	414.4365	2.56831
•P	22.58955	0.00228	0.032132	8.2	76.03227	0.0742	8.3	100	89.7	417.01954	2.66604
Integral age =										404	2
(•)Plateau age =			MSWD = 2.1. ρ = 0.07. steps K–P					48.8		415	2
Milejowice-1 (1) (J = 0.0034203 ± 3.500000e-6):											
A	17.2844	0.02742	0.436231	0.5	35.86143	0.009	0.3	0.3	21.8	208.72825	19.10599
B	17.28131	0.0253	0.313958	0.6	20.68209	0.0191	0.6	0.9	18.2	123.30691	10.98308
C	20.07221	0.00819	0.21515	1.1	28.61741	0.0217	0.7	1.6	31.1	168.46683	8.63977
D	14.32138	0.01805	0.265646	0.6	34.51816	0.0392	1.2	2.8	30.6	201.33006	5.59309
E	13.92607	0.00404	0.235312	0.7	35.97859	0.0678	2.1	4.9	34.2	209.37208	3.71549
F	12.10572	0.02028	0.161571	0.9	38.55485	0.104	3.3	8.2	44.8	223.47173	2.39267
G	13.90127	0.00813	0.130392	1.2	45.29404	0.152	4.8	12.9	54.2	259.84192	1.99
H	12.05579	0.01251	0.124405	1.1	48.84757	0.1789	5.6	18.5	57.2	278.7285	1.68984
I	9.7724	0.01127	0.084402	1.3	53.66349	0.2231	7	25.5	68.5	304.01295	1.45471
J	8.21685	0.00512	0.056763	1.7	54.76029	0.2989	9.4	34.8	76.8	309.72211	1.09705
K	6.8141	0.00576	0.041992	1.9	57.09705	0.3634	11.4	46.2	82.4	321.82577	0.9181
L	7.80139	0.00732	0.03908	2.3	51.7196	0.3996	12.5	58.7	82.1	293.84978	0.82445
•M	8.53906	0.00775	0.03737	2.7	57.23301	0.3352	10.5	69.2	84.2	322.52754	1.02959
•N	9.6929	0.00731	0.032122	3.5	57.37783	0.3494	10.9	80.1	86.2	323.27468	0.95754
•O	8.39097	0.00945	0.01865	5.2	57.41305	0.3539	11.1	91.2	91.6	323.45634	0.86253
•P	8.08559	0.00762	0.017292	5.4	56.73383	0.2811	8.8	100	92.1	319.94973	1.09874
Integral age =										301.5	1.2
(•)Plateau age =			MSWD = 2.4. ρ = 0.06. steps M–P					41.3		322.5	1.1

Milejowice-1 (2) (J = 0.0034203 ± 3.500000e-6):											
Step	Ca/K	Cl/K	³⁶ Ar- ³⁹ Ar	% ³⁶ Ar(Ca)	⁴⁰ Ar- ³⁹ Ar	Mol ³⁹ Ar	% Step	Cum. [%]	% ⁴⁰ Ar*	Age [Ma]	± Age
A	11.44019	0.07323	0.212422	0.6	29.8638	0.0163	0.5	0.5	32.3	175.45845	11.20255
B	10.5884	0.0059	0.208898	0.6	26.58374	0.0246	0.8	1.3	30.2	157.00051	7.19925
C	11.83241	0.02656	0.256824	0.5	20.99926	0.0271	0.8	2.1	21.7	125.1338	7.85378
D	13.37497	0.02903	0.209199	0.7	29.48455	0.0482	1.5	3.6	32.4	173.33388	4.61654
E	13.45858	0.00458	0.253691	0.6	34.49109	0.0649	2	5.6	31.6	201.18064	4.0842
F	13.21099	0.01822	0.168428	0.9	44.5943	0.1217	3.8	9.4	47.4	256.09952	2.40807
G	11.92617	0.01626	0.109734	1.3	50.69557	0.1803	5.6	15	61.2	288.47279	1.70212
H	12.68074	0.01327	0.084297	1.8	53.13382	0.1796	5.6	20.6	68.4	301.24936	1.64267
I	11.23493	0.0082	0.080813	1.6	53.84705	0.2138	6.6	27.3	69.6	304.96969	1.40832
J	13.553	0.00939	0.084918	1.9	54.02	0.239	7.4	34.7	68.6	305.87067	1.26187
K	13.64882	0.00987	0.065249	2.4	55.52658	0.2737	8.5	43.2	74.6	313.70022	1.28508
L	11.84941	0.01436	0.072598	1.9	56.2354	0.3493	10.9	54.1	72.7	317.37216	1.15272
M	10.24215	0.01437	0.050729	2.3	57.25339	0.378	11.8	65.8	79.6	322.63271	0.97601
•N	10.2336	0.01396	0.046143	2.6	58.71656	0.3415	10.6	76.4	81.5	330.16692	0.98892
•O	10.28533	0.00968	0.032071	3.7	59.18032	0.3909	12.2	88.6	86.6	332.54837	1.01087
•P	8.91134	0.00679	0.023289	4.5	58.76003	0.3672	11.4	100	89.9	330.3903	0.85862
Integral age =										308.1	1.3
(•)Plateau age =			MSWD = 1.8. ρ = 0.17. steps N–P				34.2			331	1.9
Wzorki-1 (1)											
A	24.76626	0.14206	0.993193	0.3	69.90236	0.0073	0.5	0.5	19.2	388.93563	28.67688
B	20.84933	0.05385	0.845075	0.3	57.29584	0.0151	1	1.5	18.6	324.70899	16.3928
C	23.81756	0.08001	0.796182	0.3	52.28111	0.0194	1.3	2.9	18.1	298.5108	11.99811
D	24.28221	0.04402	0.563928	0.5	47.43836	0.0297	2	4.9	22.1	272.84483	9.26368
E	27.1472	0.04676	0.491615	0.6	44.11866	0.0332	2.3	7.2	23.3	255.03748	7.46171
F	20.75065	0.05464	0.378824	0.6	39.2764	0.072	5	12.2	26	228.74359	5.28191
G	17.89744	0.04179	0.287677	0.7	41.51317	0.1314	9	21.2	32.9	240.93706	2.87131
H	14.81034	0.01813	0.146701	1.2	33.20818	0.1901	13.1	34.3	43.6	195.24217	1.82165
I	18.78913	0.0114	0.116276	1.9	42.09745	0.1185	8.2	42.4	55.4	244.10869	2.30056
J	16.3374	0.00341	0.08496	2.2	42.24108	0.1405	9.7	52.1	63.1	244.88746	1.8554
K	16.4704	0.01212	0.091114	2.1	41.15747	0.1234	8.5	60.6	60.8	239.0035	2.0491
L	18.77715	0.00524	0.068544	3.2	42.31383	0.1169	8	68.6	68.2	245.2818	2.01701
M	24.88557	0.00864	0.077241	3.7	42.05773	0.135	9.3	77.9	65.5	243.89324	1.85042
•N	15.9838	0.01006	0.069544	2.7	41.23777	0.1416	9.7	87.6	67.2	239.4402	1.74455
•O	28.04369	0.03409	0.095107	3.4	40.13787	0.103	7.1	94.7	59.5	233.44956	2.53693
•P	53.78867	0.0454	0.108616	5.8	41.82095	0.0767	5.3	100	57.6	242.60846	2.88432
Integral age =										238	2
(•)Plateau age =			MSWD = 2.1. ρ = 0.06. steps I–N				53.4			242.7	1.6
Wzorki-1 (2)											
A	17.23751	0.15965	1.386538	0.1	55.63662	0.0084	0.8	0.8	11.9	316.08285	28.60238
B	22.76601	0.03478	1.082275	0.2	67.56769	0.0148	1.5	2.3	17.4	377.21238	17.01061
C	35.54008	0.01871	0.799488	0.5	58.17714	0.0214	2.1	4.4	19.7	329.27405	12.44082
D	36.60695	0.06472	0.649807	0.7	54.81706	0.027	2.7	7.1	22.1	311.80679	9.02994
E	26.63181	0.04325	0.400005	0.8	50.09874	0.0382	3.8	10.9	29.8	286.9897	7.1248
F	19.48537	0.03271	0.383727	0.6	52.82557	0.0505	5	15.9	31.8	301.37367	5.58889
G	23.91077	0.03661	0.335666	0.8	47.68462	0.1154	11.5	27.4	32.5	274.15881	3.34126
H	17.26784	0.02008	0.154588	1.3	42.00069	0.0997	9.9	37.3	48.1	243.58385	2.8552
•I	19.06849	0.02131	0.140592	1.6	42.93654	0.085	8.5	45.8	51.1	248.65374	2.96598
•J	21.62409	0.02221	0.098268	2.6	42.58866	0.0726	7.2	53	59.9	246.77075	2.67431
•K	28.54014	0.02022	0.114969	2.9	41.14399	0.0745	7.4	60.4	55.3	238.93021	3.07671
•L	29.07114	0.02059	0.074363	4.5	41.3093	0.1037	10.3	70.7	66.1	239.8291	2.12163
M	37.45299	0.01698	0.07008	6.2	43.36073	0.0909	9	79.8	68.8	250.94707	2.32861
N	36.21017	0.02136	0.066486	6.3	42.79142	0.0771	7.7	87.5	69.7	247.86849	2.45353
O	41.79923	0.02203	0.062703	7.8	42.44348	0.0815	8.1	95.6	71	245.9844	2.42215
P	44.15328	0.02685	0.073445	7	42.94004	0.0447	4.4	100	67.7	248.67266	3.8065
Integral age =										259	3
(•)Plateau age =			MSWD = 2.4. ρ = 0.05. steps H–L				43.3			243	2

Step – number of heating steps (dot indicate plateau), Ca/K and Cl/K are element ratios, Mol ³⁹Ar – mol ³⁹Ar released at each step, % Step – % of total ³⁹Ar released at each step, Cum. – cumulative ³⁹Ar release, %⁴⁰Ar* – % of ⁴⁰Ar released