***The Journal of Gemmology* Data Depository**

Chemical data to accompany the article:

Vigier, M. & Fritsch, E. 2020. Pink axinite from Merelani, Tanzania: Origin of colour and luminescence. *Journal of Gemmology*, **37**(2), 192–205, https://doi.org/10.15506/JoG.2020.37.2.192.

Table DD-1: Chemical data for Axinite-(Fe) from the literature and this study.

Reference	**Filip *et al.* (2006)**		**Zagorsky *et al.* (2016)**			**Jobbins *et al.* (1975)**	**Andreozzi *et al.* (2004)**			**Jang-Green *et al.* (2007)**	**This study** (2290a)	**Anthony *et al.* (1995a)**
Locality	Malešov, Czech Republic		O'Grady, Canada	Ziaetdin, Uzbekistan	Japan	Hajikami, Japan	Rosebery, Australia	Sri Lanka	Tanzania	Oisans, France	Ideal endmember	
Oxides (wt.%)												
SiO_2	42.24	41.66	41.66	42.21	41.60	42.20	42.3	41.7	42.1	42.97	42.34	42.16
Al_2O_3	17.70	17.38	17.38	17.62	15.78	17.50	17.8	17.5	17.7	17.77	17.01	17.88
FeO	11.58	12.42	12.42	9.30	10.80	6.10	8.7	9.4	10.6	7.80	6.94	12.60
MgO	0.33	0.19	0.19	1.29	0.38	1.60	0.19	0.74	1.07	2.94	1.56	0.00
MnO	0.65	0.43	0.43	1.66	2.80	3.30	4.7	2.88	0.4	0.62	2.16	0.00
CaO	19.52	19.67	19.67	19.50	18.20	20.10	18.9	19.06	19.38	20.10	19.37	19.67
B_2O_3 calc	6.10	6.09	6.05	6.11	7.10	6.11	6.1	6.3	6.3	6.22	6.02	6.11
H_2O calc	1.58	1.57	1.57	1.58	0.52	1.58	1.40	1.30	1.60	1.61	1.56	1.58
Total*	99.70	99.41	99.37	99.27	97.18	98.49	100.09	98.88	99.15	100.03	96.96	100.00
Cations	per 32 (O,OH)									per 16 (O,OH)	per 32 (O,OH)	
Si	8.018	7.977	7.977	8.009	8.015	8.050	8.01	7.98	7.97	3.990	8.150	8.000
B	2.000	2.000	2.000	2.001	2.361	1.900	1.99	2.07	2.06	1.000	2.000	2.000
Al	3.960	3.922	3.922	3.940	3.583	3.923	3.97	3.94	3.94	1.950	3.858	4.000
Fe tot	1.837	1.989	1.989	1.476	1.914	0.970	1.37	1.51	1.68	0.607	1.118	2.000
Mg	0.093	0.054	0.054	0.365	0.109	0.454	0.05	0.21	0.30	0.408	0.448	0.000
Mn	0.105	0.070	0.070	0.267	0.457	0.531	0.75	0.47	0.06	0.049	0.352	0.000
Ca	3.970	4.035	4.035	3.964	3.757	4.095	3.84	3.92	3.93	2.005	3.994	4.000

* Oxide totals shown here may differ from those shown in the original articles due to additional elements measured by those authors that are not listed here.
Abbreviation: nd = not determined or not detected.

Table DD-2: Chemical data for Axinite-(Mg) from the literature and this study.

Reference	Matsubara *et al.* (2011)			Jobbins *et al.* (1975)	Andreozzi *et al.* (2000)	This study			Anthony *et al.* (1995b)
						2999	3000	3355	
Locality	Kashio River, Japan			Australia	Tanzania				Ideal endmember
Oxides (wt.%)									
SiO_2	44.93	42.91	43.29	42.39	44.00	44.80	43.13	39.60	45.47	44.63
Al_2O_3	18.17	18.31	18.31	17.10	17.90	18.90	18.01	16.19	18.37	18.93
FeO	5.34	5.33	5.33	5.18	nd	nd	0.10	0.11	nd	0.00
MgO	3.82	3.93	3.93	4.20	6.90	7.18	4.62	6.82	4.36	7.48
MnO	0.27	0.23	0.26	1.38	0.40	0.50	4.14	0.19	4.86	0.00
CaO	20.75	20.42	20.42	20.31	21.70	20.60	19.97	14.99	21.22	20.83
B_2O_3 calc	4.78	6.65	6.45	5.52	6.46	6.50	6.21	5.56	6.49	6.46
H_2O calc	1.67	1.67	1.67	1.67	1.67	1.60	1.61	1.44	1.68	1.67
Total*	99.73	99.45	99.66	97.75	99.03	100.08	97.78	84.90	102.45	100.00
Cations	per 16 (O,OH)			per 32 (O,OH)						
Si	4.17	3.96	3.98	7.885	8.012	8.02	8.052	8.256	8.122	8.000
B	0.77	1.06	1.02	1.772	2.00	2.01	2.000	2.000	2.000	2.010
Al	1.99	1.99	1.98	3.649	3.842	3.99	3.962	3.978	3.866	4.000
Fe tot	0.41	0.41	0.38	1.041	nd	nd	0.016	0.020	nd	0.000
Mg	0.53	0.54	0.58	1.165	1.872	1.92	1.286	2.120	1.160	2.000
Mn	0.02	0.02	0.02	0.217	0.061	0.07	0.654	0.034	0.736	0.000
Ca	2.06	2.02	2.05	4.049	4.234	3.95	3.994	3.348	4.060	4.000

* Oxide totals shown here may differ from those shown in the original articles due to additional elements measured by those authors that are not listed here.
Abbreviation: nd = not determined or not detected.

Table DD-3: Chemical data for Axinite-(Mn) from the literature and this study.

Reference	Zagorsky *et al.* (2016)						Andreozzi *et al.* (2004)					This study		Anthony *et al.* (1995b)
												3356	3357	
Country	Russia			USA			Italy	Japan	Poland	Russia	USA	Tanzania		Ideal endmember
Locality	Sosedka, Malkhan deposit		Siberia	Little 3, California	Minnesota		S. Paolo Cervo	Obira, Bungo	Striegau, Slesia	Dalnegorsk	Graham, Arizona	Merelani		
Oxides (wt.%)														
SiO_2	42.93	43.10	42.21	42.48	40.64	41.66	42.8	42.9	42.4	42.8	41.8	42.66	41.82	42.23
Al_2O_3	17.37	16.40	17.90	18.20	18.34	18.00	17.3	17.8	17.6	18.2	16.7	17.33	16.76	17.91
Fe_2O_3	1.34	2.65	2.28	nd	nd	0.10	nd	nd	nd	nd	nd	nd	nd	0.00
FeO	2.36	0.70	0.92	3.30	2.80	3.27	6.5	2.12	6.1	5.5	2.3	0.08	1.84	0.00
MgO	0.09	0.11	0.03	0.50	0.29	0.25	1.4	1.07	0.15	0.14	0.02	0.55	2.27	0.00
MnO	9.88	10.02	10.16	9.26	9.94	11.66	5.1	9.7	6.8	7.8	12.5	10.28	6.00	12.46
CaO	17.99	19.24	17.93	18.87	19.18	18.08	19.28	19.27	19.10	19.4	18.9	19.32	20.17	19.70
Na_2O	0.11	0.13	0.16	nd	<0.03	0.15	nd	nd	nd	nd	nd	nd	nd	0.00
B_2O_3 calc	5.18	5.18	4.96	6.21	6.12	5.96	6.0	6.0	5.7	6.1	6.0	6.05	6.00	6.12
H_2O calc	1.67	1.37	1.55	1.46	1.51	1.30	1.6	1.6	1.5	1.5	1.4	1.57	1.55	1.58
Total*	98.92	98.9	98.1	100.28	98.82	100.43	99.98	100.46	99.35	101.44	99.62	97.84	96.41	100.00
Cations per 32 (O,OH)														
Si	8.133	8.322	8.083	8.013	8.074	7.977	8.04	8.05	8.09	8.00	8.02	8.168	8.082	8.000
B	1.694	1.527	1.640	2.022	2.061	1.966	1.94	1.94	1.88	2.00	1.95	2.000	2.000	2.000
Al	3.879	3.732	4.040	4.046	4.294	4.055	3.84	3.93	3.97	3.74	4.01	3.910	3.818	4.000
Fe tot	0.565	0.498	0.476	0.521	0.465	0.537	1.02	0.33	0.97	0.79	0.87	0.012	0.298	0.000
Mg	0.025	0.025	0.009	0.141	0.086	0.071	0.40	0.30	0.04	0.04	0.04	0.156	0.654	0.000
Mn	1.585	1.639	1.648	1.479	1.673	1.888	0.80	1.55	1.09	1.48	1.24	1.668	0.982	2.000
Ca	3.625	3.652	3.940	3.679	4.083	3.703	3.88	3.87	3.92	3.91	3.88	3.964	4.176	4.000
Na	0.040	0.049	0.059	nd	nd	0.560	nd	nd	nd	nd	nd	nd	nd	0.000

* Oxide totals shown here may differ from those shown in the original articles due to additional elements measured by those authors that are not listed here.
Abbreviation: nd = not determined or not detected.

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