

Table S4. Pyroxene and wollastonite composition from Bronze Age metallurgical slags of South Ural

№	Object	Sample	Analyses	SiO ₂	CaO	Al ₂ O ₃	FeO	MgO	Na ₂ O	K ₂ O	MnO	TiO ₂	Cr ₂ O ₃	BaO	Total		
	Turganik	P25-3sh-1	Pigeonite (Fe _{1.04-1.09} Mg _{0.79-0.83} Ca _{0.09-0.11}) _{1.98-1.99} (Si _{1.99-2} Al _{0.02}) _{2.01} O ₆														
1.			19196b	50.24	2.6	0.39	33.08	13.3	–	–	–	–	–	–	–	99.61	
2.			19196g*	50.9	2.17	0.37	31.9	14.27	–	–	–	–	–	–	–	100.11	
		P25-6sh	Augite (Fe _{0.88-1.04} Ca _{0.6-0.87} Mg _{0.13-0.47} Na _{0-0.02} Cr _{0.01}) _{1.98-1.99} (Si _{1.93-1.96} Al _{0.05-0.09}) _{2.01-2.02} O ₆														
3.			19198g	48.54	20.18	1.25	26.33	4.17	–	–	–	–	–	0.16	–	100.64	
4.			19198k	48.99	14.07	1.2	28.38	7.47	–	–	–	–	–	0.23	0.24	100.58	
5.	19198o		47.16	18.49	1.76	30.51	2.13	0.2	–	–	–	–	0.31	–	100.56		
6.		19198p	49.66	14.63	1.02	27.07	7.99	0.13	–	–	–	–	0.26	0.18	100.93		
	Katsbakh 1	w937-20-15	Wollastonite (Ca _{0.9-0.91} Fe _{0.04-0.05} Mg _{0.01} Mn _{0.01}) _{0.97} Si _{1.02} O ₃														
7.			16124b	52.45	43.57	–	2.85	0.47	–	–	–	0.34	–	–	–	–	99.69
8.		16124f	52.41	43.63	–	2.53	0.47	–	–	–	0.48	–	–	–	99.53		
	Vorovskaya Yama	VYa100-1	Fe-wollastonite (Ca _{0.78-1.1} Fe _{0.74-1.02} Mg _{0.01-0.3} Mn _{0.01-0.06} Na _{0-0.17} K _{0-0.11}) _{1.91-2.17} (Si _{1.66-1.81} Al _{0.17-0.43} Ti _{0-0.03} Cr _{0-0.01}) _{1.92-2.14} O ₆														
9.			16114d	41.08	20.73	8.74	26.28	1.44	–	–	–	0.95	–	–	–	–	99.22
10.			16114e	39.98	18.80	6.82	28.13	0.19	1.53	1.88	1.68	–	–	–	–	–	99.02
11.			16114f	42.70	20.92	7.88	25.54	1.19	–	–	–	0.83	–	–	–	–	99.05
12.		16114h	39.62	17.11	8.18	28.80	0.28	2.03	2.08	1.61	–	–	–	–	–	99.72	
13.		VYa100-3	2034d	40.00	21.86	4.15	26.43	1.02	–	0.59	1.01	0.19	0.21	–	–	95.46	
14.			2034g	42.03	24.32	3.43	25.11	4.11	–	0.18	0.52	0.02	0.02	–	–	99.73	
15.			2035b	40.08	24.67	6.28	22.81	4.22	–	0.18	0.24	0.90	–	–	–	99.38	
16.			16115a	44.47	20.19	6.75	24.19	2.20	0.31	1.02	0.46	0.24	–	–	–	99.84	
17.			16115b	43.21	20.02	6.76	24.17	1.40	0.91	1.51	0.71	0.35	–	–	–	99.03	
18.			16115d	44.53	21.65	5.31	22.03	5.00	–	–	–	0.57	0.39	–	–	99.49	
19.	16115h		44.45	21.47	5.99	22.85	3.51	–	–	–	0.42	0.40	–	–	99.10		
	Rodnikovoe	P87-1sh-1	Augite (Fe _{1.03-1.17} Ca _{0.73-0.81} Mg _{0.15-0.17} Na _{0-0.03} Ba _{0-0.02} Ti _{0-0.01} V _{0-0.01}) _{2.01-2.04} (Si _{1.9} Al _{0.1-0.12}) _{2.01-2.02} O ₆														
20.			19199b	45.68	16.39	2.1	32.29	2.68	0.34	–	–	–	–	–	–	–	99.49
21.			19199g**	45.88	17.05	2.48	31.27	2.5	0.34	–	–	–	–	–	–	1.05	100.79
22.		19199o	46.02	18.43	2.54	29.79	2.65	–	–	–	–	0.27	–	0.21	99.91		
	Ivanovskoe	P89sh-1	Wollastonite Ca _{0.99} SiO ₃														
23.			19195h	51.70	47.63	–	–	–	–	–	–	–	–	–	–	–	99.33
	Kzyloba	P81-1sh-1	Augite (Ca _{0.6-0.8} Mg _{0.56-0.77} Fe _{0.43-0.45} K _{0.01-0.02} Mn _{0.01} Na _{0-0.02} Cr _{0-0.01} Ti _{0.01-0.02}) _{1.84-1.89} (Si _{1.92-1.97} Al _{0.12-0.21}) _{2.08-2.13} O ₆														
24.			19200b	52.61	15.07	2.73	14.57	13.79	0.21	0.34	0.37	0.35	0.37	–	–	–	100.41
25.			19200h	50.48	19.15	3.51	13.5	11.38	–	–	–	0.027	0.65	0.21	–	–	99.14
26.		19200o	50.56	19.69	4.68	14.01	9.99	–	–	0.17	0.21	0.62	–	–	99.94		

Note. Analyses were carried out using VEGA3 TESCAN SEM electron microscope (operator I.A. Blinov) in Institute of Mineralogy SU FRC MG UB RAS, dash – element is not detected. Composition also contains: * – 0.5 wt. % CuO, ** – 0.21 wt. % V₂O₃.