



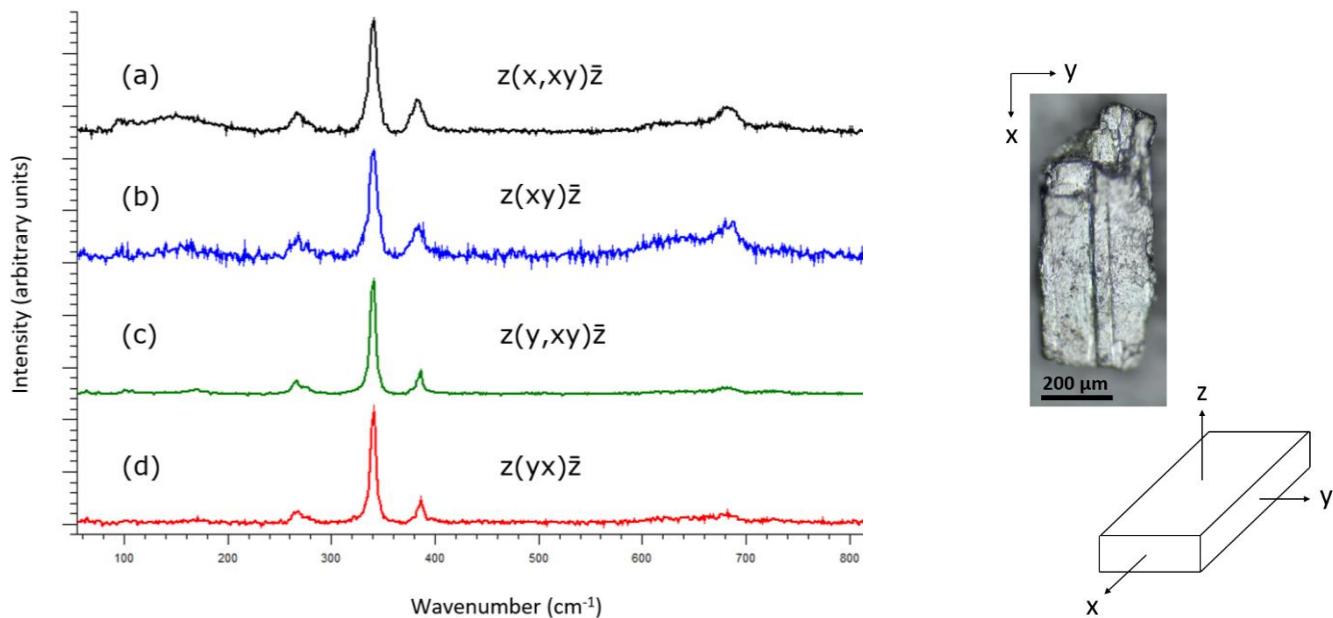
Supplement of

The effect of chemical variability and weathering on Raman spectra of enargite and fahlore

Khulan Berkh et al.

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5 **Figure S1:** Raman spectra of enargite depicted in Fig. S1: laser polarization parallel to x, without polarization analyzer (a), laser polarization parallel to x, with polarization analyzer perpendicular to laser polarization (b), laser polarization parallel to y, without a polarization analyzer (c), laser polarization parallel to y, with polarization analyzer perpendicular to laser polarization (d).

Table S1: Chemical composition (EPMA) of the studied minerals

Name	S	Fe	Cu	Zn	As	Ag	Cd	Sb	Te	Hg	Pb	total
	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)
enargite	31.97	0.48	47.98	0.06	17.17	0.00	0.00	0.89	0.00	0.00	0.00	98.55
enargite	31.42	0.57	47.32	0.06	16.56	0.00	0.00	0.99	0.00	0.00	0.00	96.91
enargite	32.23	0.47	47.88	0.06	17.52	0.00	0.00	0.82	0.00	0.00	0.00	98.97
enargite	32.35	0.51	47.98	0.06	17.53	0.00	0.00	0.69	0.00	0.00	0.00	99.11
enargite	32.32	0.06	48.96	0.03	17.90	0.00	0.03	0.03	0.00	0.00	0.00	99.35
enargite	30.25	0.13	48.72	0.05	16.13	0.00	0.04	0.05	0.00	0.00	0.03	95.38
enargite	32.19	0.54	48.41	0.04	17.40	0.00	0.00	0.09	0.00	0.00	0.00	98.67
enargite	31.63	0.47	48.84	0.03	17.28	0.00	0.03	0.03	0.00	0.00	0.00	98.31
enargite	31.83	0.54	48.95	0.03	17.53	0.00	0.00	0.02	0.00	0.00	0.00	98.90
enargite	31.95	0.30	49.08	0.03	17.61	0.00	0.04	0.03	0.00	0.00	0.00	99.04
enargite	31.33	0.26	49.05	0.04	17.19	0.00	0.04	0.08	0.00	0.00	0.00	97.99
enargite	31.59	0.61	49.59	0.04	16.99	0.00	0.04	0.09	0.00	0.00	0.02	98.96
enargite	31.48	0.27	48.69	0.04	16.92	0.00	0.00	0.00	0.00	0.00	0.00	97.40
enargite	31.75	0.26	49.01	0.09	16.85	0.00	0.00	0.00	0.00	0.00	0.00	97.96
enargite	33.89	0.19	45.38	0.20	20.70	0.00	0.00	0.02	0.00	0.00	0.00	100.37
enargite	32.14	0.15	48.90	0.04	17.81	0.00	0.03	0.05	0.00	0.00	0.03	99.15
enargite	31.65	0.13	49.00	0.03	17.51	0.00	0.06	0.05	0.00	0.00	0.00	98.44
enargite	31.29	0.16	48.74	0.04	17.30	0.00	0.06	0.07	0.00	0.00	0.00	97.65
enargite	31.64	0.18	48.34	0.04	17.57	0.00	0.06	0.08	0.00	0.00	0.00	97.91
enargite	32.05	0.13	48.76	0.14	17.34	0.00	0.03	0.14	0.00	0.00	0.00	98.58
enargite	31.33	0.75	47.53	0.26	15.90	0.00	0.00	1.86	0.00	0.00	0.00	97.63
enargite	31.76	0.47	48.05	0.04	17.08	0.00	0.00	0.11	0.00	0.00	0.00	97.52
enargite	31.55	0.64	47.06	0.38	15.76	0.00	0.00	3.43	0.00	0.00	0.00	98.82
enargite	31.74	0.85	47.83	0.02	18.36	0.00	0.00	0.56	0.00	0.00	0.00	99.36
enargite	32.08	0.43	48.42	0.00	18.50	0.00	0.00	0.54	0.00	0.00	0.00	99.96
enargite	31.99	0.48	48.45	0.00	18.54	0.00	0.00	0.24	0.00	0.00	0.00	99.70
enargite	31.72	0.61	47.93	0.00	17.37	0.00	0.00	1.89	0.00	0.00	0.00	99.52
enargite	31.91	0.97	47.95	0.14	18.23	0.00	0.00	0.47	0.00	0.00	0.00	99.67
enargite	31.50	0.93	47.43	0.12	18.33	0.00	0.00	0.75	0.00	0.00	0.00	99.05
enargite	31.30	0.76	47.67	0.26	15.38	0.00	0.00	2.23	0.01	0.00	0.02	97.63
enargite	32.16	0.82	48.29	0.07	16.61	0.00	0.00	0.13	0.01	0.00	0.00	98.10
enargite	31.92	0.53	48.49	0.05	17.43	0.00	0.00	0.11	0.01	0.02	0.00	98.57
enargite	32.36	0.55	47.92	0.06	17.25	0.00	0.00	0.85	0.01	0.00	0.00	99.01
enargite	31.19	0.87	47.72	0.04	16.63	0.00	0.00	0.32	0.02	0.00	0.00	96.78

Name	S	Fe	Cu	Zn	As	Ag	Cd	Sb	Te	Hg	Pb	total
	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)
enargite	31.58	0.62	47.23	0.17	15.19	0.00	0.00	3.85	0.02	0.00	0.00	98.66
enargite	32.05	0.51	47.65	0.05	17.30	0.00	0.00	0.86	0.02	0.00	0.00	98.44
enargite	31.94	0.55	47.98	0.08	16.96	0.00	0.00	1.08	0.02	0.00	0.00	98.62
enargite	31.86	0.16	48.57	0.39	17.62	0.00	0.00	0.08	0.02	0.00	0.00	98.69
enargite	31.84	1.08	48.25	0.00	17.95	0.00	0.00	0.44	0.02	0.00	0.00	99.58
enargite	31.93	0.74	48.31	0.00	18.58	0.00	0.00	0.15	0.02	0.00	0.00	99.73
enargite	31.92	0.71	48.20	0.06	18.26	0.00	0.00	0.41	0.02	0.00	0.00	99.58
enargite	31.56	0.73	48.17	0.03	18.65	0.00	0.00	0.21	0.02	0.00	0.00	99.37
enargite	31.76	0.65	47.75	0.08	18.18	0.00	0.00	0.77	0.03	0.00	0.00	99.21
enargite	31.63	0.49	48.33	0.04	18.29	0.00	0.00	0.24	0.03	0.00	0.00	99.05
enargite	30.71	0.46	46.97	0.50	13.95	0.00	0.00	3.83	0.03	0.00	0.00	96.44
enargite	31.93	0.56	47.89	0.07	17.45	0.00	0.00	0.73	0.03	0.00	0.00	98.66
enargite	32.72	0.21	48.63	0.10	17.94	0.00	0.00	0.12	0.03	0.00	0.00	99.76
enargite	31.17	0.59	47.13	0.44	14.15	0.00	0.00	3.06	0.03	0.00	0.02	96.59
enargite	32.03	0.82	47.45	0.09	16.32	0.00	0.00	1.91	0.04	0.00	0.03	98.70
enargite	31.95	0.64	47.95	0.03	18.67	0.00	0.00	0.35	0.04	0.00	0.00	99.63
enargite	31.16	0.50	46.63	0.61	13.72	0.00	0.00	3.19	0.04	0.00	0.26	96.11
enargite	31.86	0.55	46.77	0.48	14.68	0.00	0.00	3.02	0.04	0.00	0.00	97.40
enargite	31.71	0.74	48.10	0.07	18.41	0.00	0.00	0.52	0.04	0.00	0.00	99.59
enargite	30.99	0.65	46.30	0.98	13.19	0.00	0.00	3.39	0.07	0.00	0.00	95.56
enargite	31.94	0.60	47.67	0.09	17.27	0.00	0.00	0.89	0.05	0.00	0.00	98.51
enargite	31.27	0.53	46.85	0.68	14.08	0.00	0.00	2.89	0.05	0.00	0.00	96.35
enargite	31.74	0.55	47.99	0.10	16.48	0.00	0.00	1.12	0.07	0.00	0.11	98.16
enargite	31.66	0.55	48.05	0.06	16.59	0.00	0.00	1.25	0.08	0.00	0.04	98.27
enargite	31.72	0.71	47.97	0.09	17.03	0.00	0.00	1.30	0.09	0.00	0.00	98.90
enargite	31.58	0.61	47.98	0.11	18.24	0.00	0.00	0.59	0.10	0.00	0.00	99.21
enargite	30.67	0.62	47.51	0.10	16.18	0.00	0.00	2.01	0.16	0.00	0.04	97.30
enargite	31.40	0.71	46.96	0.07	16.52	0.00	0.00	0.62	0.19	0.00	0.00	96.46
enargite	31.79	0.65	47.43	0.09	16.24	0.00	0.00	0.58	0.23	0.04	0.03	97.07
enargite	31.55	0.65	47.57	0.08	16.44	0.00	0.00	0.57	0.27	0.00	0.05	97.18
enargite	31.44	0.82	47.16	0.11	15.82	0.00	0.00	0.82	0.36	0.04	0.05	96.62
enargite	31.52	0.69	47.33	0.10	16.12	0.00	0.00	0.66	0.38	0.03	0.04	96.87
enargite	31.67	0.68	47.41	0.11	15.94	0.00	0.00	0.44	0.40	0.00	0.04	96.69
enargite	31.99	1.16	47.54	0.04	17.44	0.00	0.03	0.06	0.00	0.00	0.00	98.27
enargite	31.52	0.80	47.87	0.39	16.95	0.00	0.00	0.38	0.00	0.03	0.05	97.99

Name	S	Fe	Cu	Zn	As	Ag	Cd	Sb	Te	Hg	Pb	total
	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)
enargite	32.08	0.82	47.78	0.50	18.37	0.00	0.00	0.10	0.00	0.00	0.00	99.65
enargite	31.90	1.41	47.69	0.04	18.21	0.00	0.00	0.99	0.00	0.00	0.00	100.24
enargite	30.89	1.14	46.24	0.05	15.56	0.00	0.00	3.81	0.00	0.00	0.00	97.69
enargite	31.40	0.72	47.32	0.48	14.84	0.00	0.00	2.12	0.02	0.00	0.04	96.94
enargite	31.74	1.01	47.03	0.43	15.42	0.00	0.00	2.21	0.02	0.00	0.04	97.90
enargite	33.46	1.83	41.67	0.60	15.95	0.00	0.00	2.83	0.02	0.00	0.00	96.36
enargite	31.35	1.06	46.28	0.89	14.84	0.00	0.04	2.84	0.04	0.00	0.31	97.63
enargite	31.30	0.46	46.91	0.79	14.59	0.00	0.00	3.07	0.05	0.00	0.02	97.19
enargite	31.28	1.26	45.67	0.73	14.08	0.00	0.06	3.43	0.06	0.00	0.02	96.59
enargite	31.89	1.02	47.09	0.14	15.54	0.00	0.00	1.74	0.07	0.00	0.06	97.54
enargite	31.62	0.80	46.33	0.57	14.07	0.00	0.00	3.36	0.07	0.00	0.00	96.82
enargite	31.52	0.84	46.16	0.67	13.98	0.00	0.00	3.19	0.08	0.00	0.00	96.45
enargite	33.73	0.95	46.05	0.80	14.45	0.00	0.00	3.72	0.09	0.00	0.00	99.79
enargite	32.16	1.05	45.70	1.11	12.16	0.00	0.00	4.87	0.09	0.00	0.00	97.14
enargite	32.88	0.24	47.82	1.60	19.02	0.00	0.00	0.18	0.14	0.00	0.00	101.88
enargite	31.63	1.07	47.46	0.09	16.00	0.00	0.00	0.63	0.31	0.00	0.05	97.24
enargite	31.43	0.85	47.23	0.10	15.75	0.00	0.00	0.69	0.54	0.00	0.05	96.63
enargite	31.61	0.52	48.31	0.05	17.35	0.00	0.00	0.56	0.91	0.00	0.00	99.31
enargite	31.72	0.37	47.85	0.12	17.35	0.00	0.00	1.06	1.24	0.00	0.00	99.71
enargite	32.48	0.99	46.37	0.01	17.22	0.08	0.17	0.62	0.19	0.00	0.02	98.15
enargite	32.73	0.90	46.15	0.03	15.18	0.04	0.04	0.54	0.28	0.00	0.03	95.94
enargite	32.51	1.03	45.53	0.06	16.64	0.12	0.21	0.75	0.29	0.03	0.00	97.17
enargite	32.51	0.91	46.19	0.02	17.09	0.10	0.20	0.66	0.41	0.00	0.03	98.12
enargite	32.15	0.43	45.80	0.31	16.72	0.06	0.17	1.01	0.65	0.00	0.00	97.31
enargite	32.02	0.47	45.86	0.23	16.99	0.08	0.17	0.79	0.65	0.00	0.00	97.28
enargite	31.49	1.19	45.05	0.00	16.60	0.21	0.31	0.86	0.67	0.06	0.15	96.60
enargite	32.68	0.50	45.84	0.30	16.50	0.08	0.15	1.05	0.74	0.00	0.00	97.85
enargite	30.85	0.97	45.74	1.01	11.49	0.00	0.00	4.82	0.08	0.00	0.00	94.97
enargite	32.64	0.56	45.89	0.21	16.32	0.08	0.17	1.11	0.96	0.00	0.00	97.93
enargite	32.53	0.87	45.75	0.00	17.11	0.06	0.15	0.89	1.30	0.00	0.00	98.67
enargite	31.98	1.24	45.43	0.00	17.22	0.06	0.15	0.68	1.47	0.00	0.00	98.23
enargite	32.87	0.77	45.94	0.00	16.91	0.10	0.16	0.94	1.56	0.00	0.00	99.26
enargite	32.58	0.70	44.81	0.00	17.71	0.12	0.21	0.88	1.87	0.04	0.02	98.94
enargite	32.02	0.38	45.63	0.00	16.59	0.08	0.14	0.78	1.99	0.00	0.00	97.61
enargite	32.85	1.26	45.05	0.00	16.44	0.09	0.13	0.70	2.49	0.00	0.00	99.01

Name	S	Fe	Cu	Zn	As	Ag	Cd	Sb	Te	Hg	Pb	total
	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)
enargite	32.58	1.08	45.11	0.00	16.18	0.12	0.15	0.77	3.15	0.00	0.00	99.14
enargite	31.72	0.41	45.63	0.01	16.60	0.12	0.18	0.83	1.61	0.00	0.00	97.10
enargite	33.06	0.63	46.08	0.02	16.96	0.09	0.16	0.76	1.08	0.00	0.00	98.84
enargite	31.97	1.02	45.00	0.02	16.51	0.12	0.13	0.70	2.36	0.00	0.00	97.82
enargite	31.02	0.46	45.38	0.02	16.92	0.11	0.20	0.64	1.40	0.00	0.00	96.15
enargite	30.53	0.62	45.36	1.76	11.61	0.00	0.00	4.50	0.15	0.00	0.00	94.53
enargite	31.97	0.45	46.28	0.02	16.13	0.02	0.06	0.71	1.56	0.00	0.00	97.21
enargite	32.08	0.39	46.22	0.03	16.77	0.09	0.17	0.92	1.29	0.03	0.00	97.98
enargite	32.76	0.42	45.84	0.03	16.71	0.09	0.16	0.64	2.50	0.00	0.00	99.15
enargite	30.52	0.77	45.50	1.28	11.68	0.00	0.00	4.84	0.10	0.00	0.00	94.68
enargite	31.26	1.01	45.59	1.19	11.46	0.00	0.00	4.91	0.09	0.00	0.00	95.52
enargite	32.86	0.50	45.83	0.05	17.32	0.09	0.16	0.73	1.61	0.00	0.00	99.15
enargite	33.52	0.65	44.31	0.06	18.85	0.05	0.09	0.88	1.51	0.00	0.00	99.91
enargite	31.13	0.40	45.93	0.12	16.47	0.10	0.16	1.08	1.23	0.00	0.00	96.62
enargite	32.34	0.42	45.95	0.17	16.80	0.10	0.16	0.94	1.02	0.00	0.00	97.88
enargite	31.84	0.43	45.10	1.17	16.47	0.08	0.14	0.79	2.07	0.00	0.06	98.16
enargite	32.09	1.45	46.18	0.12	15.99	0.00	0.00	1.03	0.71	0.03	0.06	97.65
enargite	31.89	1.68	45.99	0.09	15.84	0.00	0.00	0.73	1.92	0.00	0.04	98.17
tennantite	28.67	3.18	45.85	2.01	19.10	0.00	0.00	1.64	0.09	0.05	0.00	100.60
tennantite	28.92	3.14	46.01	2.00	18.61	0.00	0.00	1.91	0.02	0.05	0.08	100.73
tennantite	28.75	3.31	45.10	2.19	18.86	0.00	0.00	2.24	0.13	0.04	0.00	100.62
tennantite	27.90	2.92	46.28	2.37	16.07	0.00	0.00	2.27	0.07	0.00	0.00	97.87
tennantite	27.47	2.99	44.34	2.61	14.44	0.00	0.00	7.96	0.07	0.04	0.04	99.95
tennantite	28.55	0.47	47.26	2.94	17.62	0.00	0.00	0.26	0.09	0.00	0.00	97.20
tennantite	28.91	0.42	47.31	2.80	17.30	0.00	0.00	0.35	0.16	0.00	0.03	97.28
tennantite	25.26	1.49	45.07	1.56	8.05	0.00	0.00	5.89	12.98	0.00	0.00	100.30
tennantite	27.58	1.00	41.49	8.65	17.18	0.00	0.05	2.60	0.22	0.16	0.00	98.92
tennantite	27.85	2.40	44.64	4.03	19.88	0.00	0.04	1.06	0.00	0.00	0.00	99.90
tennantite	27.62	3.66	46.57	1.50	18.47	0.00	0.00	1.26	0.04	0.00	0.00	99.11
tennantite	28.14	0.84	43.13	7.44	20.11	0.00	0.08	0.02	0.02	0.00	0.00	99.79
tennantite	27.82	3.35	47.44	0.89	20.27	0.00	0.00	0.23	0.03	0.00	0.00	100.04
tennantite	26.99	4.42	45.12	1.77	15.92	0.00	0.00	5.27	0.00	0.00	0.00	99.49
tennantite	25.78	2.17	41.49	4.51	9.69	0.00	0.00	14.62	1.89	0.06	0.09	100.31
tennantite	27.34	2.96	43.61	4.03	18.64	0.00	0.03	1.93	0.11	0.07	0.00	98.73
tennantite	27.27	3.18	42.13	4.50	16.77	0.00	0.04	5.07	0.00	0.00	0.04	99.00

Name	S	Fe	Cu	Zn	As	Ag	Cd	Sb	Te	Hg	Pb	total
	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)
tennantite	27.14	2.33	44.30	3.90	18.02	0.00	0.02	3.95	0.10	0.05	0.00	99.80
tennantite	27.02	1.84	41.45	8.35	19.03	0.00	0.11	1.01	0.86	0.00	0.00	99.68
tennantite	24.69	1.80	42.41	8.55	12.08	0.00	0.07	8.44	0.71	0.00	0.24	98.98
tennantite	29.88	3.34	40.86	6.50	18.78	0.00	0.09	0.23	0.00	0.00	0.09	99.78
tennantite	28.28	3.32	39.25	6.97	18.26	0.00	0.10	0.53	0.12	0.00	0.05	96.88
tennantite	26.78	2.81	41.17	6.29	13.05	0.03	0.02	10.57	0.06	0.00	0.00	100.79
tennantite	26.70	0.93	42.53	9.49	19.34	0.00	0.04	0.03	0.00	0.00	0.05	99.10
tennantite	25.71	1.70	42.27	7.76	14.34	0.00	0.06	6.50	0.03	0.00	0.00	98.37
tennantite	27.05	2.63	44.66	3.75	18.24	0.00	0.02	3.19	0.10	0.00	0.00	99.64
tennantite	28.29	0.69	50.79	0.18	18.11	0.03	0.00	2.17	0.00	0.03	0.00	100.28
tennantite	26.65	0.32	51.15	0.07	17.51	0.11	0.12	1.85	0.01	0.06	0.07	97.91
tennantite	27.40	0.43	49.42	0.15	17.95	0.30	0.15	0.23	0.00	0.00	0.06	96.08
tennantite	28.00	0.40	49.08	0.13	16.63	1.00	0.06	2.57	0.00	0.00	0.20	98.07
tennantite	28.19	0.44	51.45	0.05	18.03	0.00	0.00	2.11	0.00	0.00	0.00	100.27
tennantite	28.58	0.31	51.90	0.05	18.96	0.00	0.00	1.41	0.00	0.00	0.00	101.20
tennantite	28.17	0.20	51.96	0.05	18.56	0.06	0.00	1.01	0.00	0.00	0.00	100.01
tennantite	27.70	1.87	48.81	1.30	19.94	0.00	0.00	0.54	0.00	0.00	0.00	100.16
tennantite	27.42	1.86	43.15	6.31	18.51	0.00	0.06	2.41	0.00	0.04	0.00	99.77
tennantite	28.35	0.94	50.79	0.22	19.80	0.02	0.00	0.44	0.00	0.00	0.00	100.55
tennantite	27.77	2.82	48.29	1.16	20.29	0.00	0.00	0.22	0.00	0.00	0.00	100.55
tennantite	27.58	2.72	48.31	0.47	17.59	0.00	0.00	3.49	0.00	0.10	0.00	100.26
tennantite	26.91	1.87	49.26	0.20	18.89	0.00	0.00	2.02	0.00	0.04	0.00	99.20
tennantite	26.97	1.55	49.95	0.18	19.07	0.00	0.00	1.87	0.02	0.04	0.00	99.67
tennantite	26.35	0.46	51.23	0.03	18.98	0.13	0.00	2.69	0.00	0.00	0.00	99.87
tetrahedrite	25.57	2.73	39.90	4.02	2.83	0.00	0.00	21.69	0.03	0.00	0.00	96.76
tetrahedrite	25.49	2.62	39.66	4.65	1.40	0.00	0.00	25.07	0.01	0.00	0.00	98.89
tetrahedrite	26.70	3.16	41.40	3.42	4.75	0.00	0.00	22.08	0.03	0.00	0.00	101.55
tetrahedrite	26.66	2.82	42.08	3.16	7.73	0.00	0.00	13.48	0.15	0.00	0.00	96.08
tetrahedrite	26.79	2.60	41.38	3.21	8.34	0.00	0.00	17.44	0.10	0.00	0.00	99.86
tetrahedrite	25.85	2.21	39.82	3.29	4.87	0.00	0.00	25.54	0.11	0.00	0.00	101.68
tetrahedrite	26.71	2.67	41.88	3.28	10.19	0.00	0.00	16.83	0.03	0.00	0.03	101.62
tetrahedrite	26.89	5.39	39.11	3.56	4.15	0.00	0.00	20.78	0.09	0.00	0.00	99.98
tetrahedrite	25.71	1.62	39.99	6.58	7.94	0.00	0.06	19.04	0.02	0.00	0.00	100.96
tetrahedrite	24.31	1.17	41.08	4.46	3.53	0.00	0.00	20.63	5.15	0.06	0.00	100.39
tetrahedrite	24.66	0.98	37.40	8.35	6.52	1.15	0.03	21.40	0.00	0.00	0.00	100.48

Name	S	Fe	Cu	Zn	As	Ag	Cd	Sb	Te	Hg	Pb	total
	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)
tetrahedrite	24.30	2.78	42.71	2.99	6.21	0.16	0.00	17.65	0.04	0.00	0.00	96.83
tetrahedrite	24.48	1.96	36.78	5.69	5.47	0.00	0.00	24.67	0.04	0.00	0.00	99.09
goldfieldite	25.69	0.67	43.37	0.53	3.71	0.00	0.00	7.26	16.28	0.00	0.00	97.51
goldfieldite	24.84	0.44	45.21	0.17	1.80	0.00	0.00	10.01	15.95	0.00	0.00	98.43
goldfieldite	25.34	0.96	44.05	0.94	2.26	0.00	0.00	8.54	14.13	0.00	0.00	96.22
goldfieldite	25.49	0.63	43.69	0.55	2.61	0.00	0.00	7.41	15.84	0.00	0.00	96.21
goldfieldite	25.28	0.42	44.31	0.18	2.04	0.00	0.00	9.85	16.21	0.00	0.00	98.30
goldfieldite	23.28	0.65	46.18	0.50	2.40	0.00	0.00	7.85	13.60	0.00	0.00	94.47
goldfieldite	25.43	1.34	43.47	1.07	4.39	0.00	0.00	7.29	12.52	0.00	0.00	95.52
secondary phase	28.11	2.04	44.56	0.36	16.38	0.20	0.16	0.47	0.00	0.00	0.03	92.32
secondary phase	27.96	1.79	45.37	0.51	16.33	0.29	0.17	0.40	0.00	0.00	0.02	92.85
secondary phase	25.92	2.14	45.99	0.41	15.05	0.20	0.00	0.79	0.00	0.00	0.00	90.50
secondary phase	28.90	1.25	46.53	0.35	15.92	0.00	0.00	0.84	0.00	0.00	0.00	93.79
secondary phase	26.30	1.31	46.69	0.43	10.73	0.00	0.00	0.90	0.00	0.00	0.00	86.36
secondary phase	26.93	1.05	45.59	0.35	13.51	0.10	0.00	0.32	0.00	0.00	0.00	87.85
secondary phase	14.27	1.90	43.41	0.58	3.05	0.00	0.00	0.00	0.00	0.00	0.00	63.21
secondary phase	26.85	1.14	45.56	0.23	15.27	0.19	0.00	0.36	0.00	0.00	0.03	89.64
secondary phase	24.02	1.16	45.18	0.27	14.81	0.10	0.00	0.29	0.00	0.00	0.04	85.86
secondary phase	17.49	2.06	44.70	0.65	8.45	0.00	0.00	0.00	0.00	0.00	0.00	73.35
secondary phase	29.64	1.23	42.26	0.23	19.32	0.31	0.30	0.45	0.00	0.03	0.05	93.82
secondary phase	27.17	1.35	43.19	0.29	17.39	0.29	0.21	0.39	0.00	0.03	0.07	90.39
secondary phase	26.27	1.09	46.57	0.20	17.86	0.25	0.15	0.42	0.00	0.04	0.07	92.92
secondary phase	27.95	0.90	47.52	0.81	17.15	0.20	0.10	1.79	0.00	0.00	0.04	96.45
secondary phase	25.62	1.60	44.50	0.60	12.69	0.00	0.00	1.28	0.00	0.00	0.00	86.29
secondary phase	26.43	1.69	46.08	0.83	13.47	0.00	0.00	1.21	0.00	0.00	0.00	89.71
secondary phase	24.12	1.70	45.85	1.17	15.33	0.13	0.08	1.01	0.00	0.00	0.00	89.38
secondary phase	20.09	0.60	52.01	0.10	9.71	0.00	0.00	1.22	0.00	0.00	0.00	83.73
secondary phase	14.22	0.41	47.82	0.30	3.36	0.00	0.00	0.38	0.00	0.00	0.00	66.50
secondary phase	17.15	0.50	48.70	0.38	4.27	0.00	0.00	0.74	0.00	0.00	0.00	71.73
secondary phase	24.93	0.43	49.36	0.29	8.80	0.00	0.00	2.23	0.00	0.00	0.00	86.03
secondary phase	25.20	0.63	50.25	0.96	11.22	0.09	0.00	1.67	0.00	0.00	0.00	90.02
secondary phase	21.95	0.72	52.29	0.34	11.32	0.21	0.00	0.81	0.00	0.00	0.00	87.65
secondary phase	23.73	0.49	51.85	0.21	10.87	0.27	0.00	1.52	0.00	0.00	0.02	88.96
secondary phase	23.49	0.51	52.09	0.20	10.89	0.27	0.00	1.28	0.00	0.00	0.02	88.75
secondary phase	26.38	0.19	50.70	0.17	11.24	0.08	0.00	0.83	0.00	0.00	0.00	89.58

Name	S	Fe	Cu	Zn	As	Ag	Cd	Sb	Te	Hg	Pb	total
	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)	(wt.%)
secondary phase	27.83	0.23	51.58	0.17	15.39	0.43	0.00	0.99	0.00	0.00	0.06	96.69
secondary phase	25.62	0.31	53.11	0.14	9.66	0.08	0.00	0.97	0.00	0.00	0.00	89.89
secondary phase	25.45	0.53	51.40	0.26	13.39	0.27	0.00	1.48	0.00	0.00	0.00	92.78
secondary phase	23.00	0.33	52.73	0.35	8.97	0.10	0.00	0.51	0.00	0.00	0.00	85.99
secondary phase	30.16	0.21	48.90	0.16	13.87	0.03	0.00	0.29	0.00	0.00	0.00	93.61
secondary phase	20.26	1.21	47.38	0.23	9.71	0.00	0.00	0.13	0.00	0.00	0.00	78.93
secondary phase	22.61	1.29	45.98	0.20	11.44	0.00	0.00	0.00	0.00	0.00	0.00	81.52
secondary phase	18.21	1.99	46.81	0.49	5.65	0.00	0.00	0.03	0.00	0.00	0.00	73.17
secondary phase	24.54	0.77	48.03	0.23	8.94	0.28	0.00	0.00	0.00	0.00	0.00	82.79
secondary phase	21.59	0.77	45.20	0.30	4.67	0.00	0.00	0.00	0.00	0.00	0.00	72.52
secondary phase	25.32	1.24	50.90	0.31	10.73	0.00	0.00	0.94	0.00	0.00	0.00	89.44
secondary phase	29.36	0.68	48.56	0.18	14.78	0.15	0.00	1.33	0.00	0.00	0.00	95.04
secondary phase	25.67	1.24	47.33	0.28	17.10	0.26	0.07	1.46	0.00	0.00	0.00	93.40
secondary phase	27.58	0.40	51.52	0.08	17.06	0.16	0.00	1.74	0.00	0.00	0.00	98.54
secondary phase	25.17	0.79	48.66	0.34	15.69	0.12	0.00	0.82	0.00	0.00	0.00	91.60
secondary phase	13.57	1.36	46.37	0.43	3.71	0.00	0.00	0.49	0.00	0.00	0.00	65.95
secondary phase	25.40	1.01	48.10	0.33	9.35	0.00	0.00	1.37	0.00	0.00	0.00	85.57
secondary phase	27.66	0.27	51.92	0.05	17.75	0.00	0.00	1.44	0.00	0.00	0.00	99.08