

Table S1. Electron probe analysis results of minerals from the Niuxingba-Liumukeng deposit (wt%)

Sample Name	Minerals	As	Au	Fe	Cu	S	Sb	Zn	Pb	Ag	Bi	Cd	Total	Molecular Formula
YK-22-1-1	Uytenbogaardtite	0.00	45.81	0.19	0.02	4.97	0.09	0.22	0.40	46.80	0.20	0.19	98.87	Ag _{3.17} Au _{1.70} S _{1.13}
YK-45-1-3	Galena	0.00	0.03	0.00	0.20	10.29	0.02	0.25	87.59	0.45	1.10	0.00	99.92	Pb _{1.14} S _{0.86}
YK-24-2-3	Emplectite	0.00	0.03	0.12	19.67	17.87	0.03	0.00	0.00	0.05	62.36	0.00	100.12	Cu _{1.06} Bi _{1.02} S _{1.91}
YK-24-2-5	Emplectite	0.00	0.00	0.04	19.45	17.91	0.03	0.00	0.00	0.33	61.65	0.03	99.44	Cu _{1.06} Bi _{1.02} S _{1.93}
YK-24-2-6	Emplectite	0.00	0.05	0.11	19.63	18.04	0.00	0.00	0.00	0.18	62.02	0.00	100.03	Cu _{1.06} Bi _{1.02} S _{1.93}
YKA-1-2	Emplectite	0.00	0.00	0.01	19.58	17.96	0.01	0.00	0.00	0.07	62.13	0.00	99.77	Cu _{1.06} Bi _{1.02} S _{1.92}
YKA-1-1-2	Berryite	0.00	0.00	0.00	6.72	16.45	0.04	0.00	20.20	7.56	49.85	0.00	100.80	Pb _{2.95} (Ag, Cu) _{5.32} Bi _{7.22} S _{15.52}
YKA-1-1-3	Berryite	0.00	0.00	0.00	6.60	16.24	0.04	0.00	19.91	7.23	49.10	0.00	99.11	Pb _{2.95} (Ag, Cu) _{5.25} Bi _{7.22} S _{15.57}
YKA-1-1	Berryite	0.00	0.00	0.02	6.97	16.11	0.03	0.00	20.19	7.37	48.43	0.02	99.12	Pb ₃ (Ag, Cu) _{5.47} Bi _{7.12} S _{15.43}
YK-24-2-4	Berryite	0.00	0.00	0.10	6.78	15.96	0.02	0.00	20.62	7.74	49.22	0.05	100.48	Pb _{3.05} (Ag, Cu) _{5.47} Bi _{7.22} S _{15.26}
YK-24-2-7	Berryite	0.00	0.00	0.43	6.71	15.67	0.01	0.00	20.24	7.60	48.76	0.01	99.44	Pb _{3.04} (Ag, Cu) _{5.48} Bi _{7.26} S _{15.21}
YK-45-1-4	Aikinite	0.00	0.02	0.02	10.95	15.27	0.15	0.00	35.01	0.00	38.52	0.00	99.93	Cu _{1.03} Pb _{1.01} Bi _{1.10} S _{2.85}
YK-45-1-5	Aikinite	0.00	0.00	0.06	11.63	15.35	0.16	0.00	34.91	0.01	37.36	0.00	99.46	Cu _{1.09} Pb Bi _{1.06} S _{2.85}
YK-45-1-2	Aikinite	0.00	0.00	0.01	11.37	15.28	0.06	0.00	37.33	0.00	35.75	0.00	99.79	Cu _{1.07} Pb _{1.07} Bi _{1.02} S _{2.84}
YKA-1-3	Aikinite	0.00	0.00	0.00	10.03	15.78	0.15	0.00	31.16	0.00	42.83	0.00	99.95	Cu _{0.94} Pb _{0.90} Bi _{1.22} S _{2.94}
YKA-1-4	Aikinite	0.00	0.08	0.01	8.74	15.70	0.21	0.00	28.95	0.00	45.47	0.00	99.15	Cu _{0.84} Pb _{0.85} Bi _{1.33} S _{2.98}
YKA-16-2-5	Argentite	3.34	0.00	0.05	4.98	13.92	4.28	0.00	0.00	73.26	0.00	0.28	100.11	Ag _{1.83} S _{1.17}
YKA-16-2-6	Argentite	0.09	0.00	0.01	3.23	11.13	7.15	0.00	0.00	77.25	0.00	0.32	99.17	Ag _{2.02} S _{0.98}
YKA-16-2-1	Argentite	3.56	0.06	0.00	5.05	14.07	4.24	0.00	0.00	73.18	0.00	0.25	100.40	Ag _{1.82} S _{1.18}
YKA-16-2-2	Argentite	3.14	0.24	0.02	4.92	14.00	4.49	0.00	0.00	71.72	0.00	0.29	98.82	Ag _{1.81} S _{1.19}
YKA-16-2-3	Tetrahedrite	5.53	0.00	2.12	25.57	24.74	19.77	1.77	0.00	19.33	0.00	0.69	99.52	(Cu, Ag, Fe, Zn) _{11.34} (Sb, As) _{4.14} S _{13.52}
YKA-16-2-4	Tetrahedrite	5.26	0.00	2.01	25.71	24.38	20.43	2.16	0.00	19.44	0.00	0.68	100.07	(Cu, Ag, Fe, Zn) _{11.48} (Sb, As) _{4.18} S _{13.35}
YKA-16-2-7	Tetrahedrite	0.58	0.00	0.76	24.20	23.29	27.07	3.66	0.00	19.61	0.00	0.39	99.54	(Cu, Ag, Fe, Zn) _{11.54} (Sb, As) _{4.20} S _{13.26}