

TABLE S1. COMPOSITION OF OLIVINE
IN THE IKEN NICKEL DEPOSIT,
KUN-MANIE COMPLEX, AMUR OBLAST, RUSSIA

#	Sample	SiO ₂	FeO	MnO	MgO	NiO	Total	Mg#
1	KUNMANYO-1	39.98	18.64		42.40		101.02	80.2
2	KUNMANYO-2	39.00	18.35		41.06		98.41	80.0
3	KUNMANYO-2	39.47	18.04		41.37	0.62	99.50	80.3
4	KUNMANYO-2	38.85	18.60		41.28		98.73	79.8
5	KUNMANYO-2	39.83	18.00		42.82		100.65	80.9
6	KUNMANYO-3	40.09	19.18		42.39		101.66	79.8
7	KUNMANYO-3	39.81	19.27		42.77		101.85	79.8
8	KUNMANYO-4	40.65	18.82		42.45		101.92	80.1
9	KUNMANYO-4	40.11	18.72		42.72		101.55	80.3
10	KUNMANYO-5	40.07	18.81	0.23	42.20	0.25	101.56	79.8
11	KUNMANYO-5	40.05	17.87	0.32	42.07		100.31	80.5
12	KUNMANYO-6	39.19	18.44		41.74		99.37	80.1
13	KUNMANYO-6	39.86	18.11	0.35	42.19		100.51	80.3
14	KUNMANYO-6	39.54	18.64		42.29		100.47	80.2
15	KUNMANYO-6	39.81	18.33		42.44	0.47	101.05	80.5
16	KUNMANYO-6	39.47	18.42		42.24	0.50	100.63	80.3
17	KUNMANYO-6	40.09	18.89		42.73		101.71	80.1
18	KUNMANYO-6	40.09	19.00		42.22		101.31	79.8
19	KUNMANYO-7	39.81	17.57		42.47	0.39	100.24	81.2
20	KUNMANYO-7	39.02	18.38	0.09	41.59	0.51	99.59	80.1

Note. The results of SEM–EDS analyses are listed in weight %.

TABLE S2. COMPOSITION OF ORTHOPYROXENE IN THE IKEN NICKEL DEPOSIT,
KUN-MANIE COMPLEX, AMUR OBLAST, RUSSIA

#	Specimen	SiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Total	Wo	En	Fs	Mg#
1	KUNMANYO-1	55.99	2.65	0.32	12.62		29.83	0.29	101.70	0.6	80.4	19.1	80.8
2	KUNMANYO-1	54.19	2.85		12.26	0.30	29.47	0.50	99.57	1.0	79.9	19.1	80.7
3	KUNMANYO-2	54.79	2.78		12.59	0.37	29.63	0.27	100.43	0.5	79.9	19.6	80.3
4	KUNMANYO-2	54.83	2.74	0.37	11.50		30.00	0.31	99.75	0.6	81.8	17.6	82.3
5	KUNMANYO-3	55.15	2.93	0.41	11.66		29.73	0.41	100.29	0.8	81.3	17.9	82.0
6	KUNMANYO-3	54.53	3.02		12.13		29.34	0.56	99.58	1.1	80.3	18.6	81.2
7	KUNMANYO-3	55.49	2.89		12.34		29.98	0.28	100.98	0.5	80.8	18.7	81.2
8	KUNMANYO-3	55.17	2.68		12.23	0.32	30.25	0.39	101.04	0.7	80.5	18.7	81.1
9	KUNMANYO-3	55.52	3.00		11.63		29.90	0.34	100.39	0.7	81.5	17.8	82.1
10	KUNMANYO-3	55.58	2.66		11.75		30.26	0.48	100.73	0.9	81.4	17.7	82.1
11	KUNMANYO-3	55.32	2.57		11.91	0.30	29.97	0.41	100.48	0.8	80.7	18.5	81.4
12	KUNMANYO-3	55.17	2.32		11.77		30.15	0.42	99.83	0.8	81.4	17.8	82.0
13	KUNMANYO-3	55.07	2.83		11.87	0.41	29.68	0.36	100.22	0.7	80.6	18.7	81.2
14	KUNMANYO-3	55.11	2.87		12.12		29.63	0.35	100.08	0.7	80.8	18.5	81.3
15	KUNMANYO-3	54.90	2.59		11.80		29.65	0.36	99.30	0.7	81.2	18.1	81.8
16	KUNMANYO-3	54.66	2.89		11.51		29.57	0.39	99.02	0.8	81.4	17.8	82.1
17	KUNMANYO-3	54.51	2.95		11.69		29.68	0.45	99.28	0.9	81.2	17.9	81.9
18	KUNMANYO-3	54.53	2.44		11.85	0.48	29.53	0.38	99.21	0.7	80.4	18.8	81.0
19	KUNMANYO-3	54.58	2.95		11.96	0.35	29.50	0.49	99.83	1.0	80.3	18.8	81.0
20	KUNMANYO-3	55.52	2.91		11.98		29.48	0.22	100.11	0.4	81.1	18.5	81.4
21	KUNMANYO-4	55.86	2.97		11.78		29.80	0.50	100.91	1.0	81.1	18.0	81.9
22	KUNMANYO-5	54.30	2.76		11.78	0.31	29.78	0.39	99.32	0.8	80.8	18.4	81.4
23	KUNMANYO-5	55.56	2.72	0.26	11.78	0.25	30.15	0.25	100.97	0.5	81.3	18.2	81.7
24	KUNMANYO-5	55.02	2.63		12.31		29.67	0.52	100.15	1.0	80.3	18.7	81.1
25	KUNMANYO-5	54.90	3.19		11.94		30.00	0.52	100.55	1.0	80.9	18.1	81.8
26	KUNMANYO-5	55.92	2.10		12.20	0.37	30.03	0.27	100.89	0.5	80.6	18.9	81.0
27	KUNMANYO-5	55.24	3.10		11.98		29.67	0.38	100.37	0.7	80.9	18.3	81.5
28	KUNMANYO-5	54.58	2.89	0.37	11.69	0.34	29.27	0.39	99.53	0.8	80.6	18.6	81.3

29	KUNMANYO-5	54.75	3.25		11.91		29.57	0.50	99.98	1.0	80.8	18.2	81.6
30	KUNMANYO-6	55.79	2.72		11.28		30.18	0.46	100.43	0.9	81.9	17.2	82.7
31	KUNMANYO-6	55.62	2.38		12.26		29.62	0.46	100.34	0.9	80.4	18.7	81.2
32	KUNMANYO-6	55.60	2.72		12.32		29.72	0.28	100.64	0.5	80.7	18.8	81.1
33	KUNMANYO-6	55.67	2.72		11.67		30.23	0.31	100.60	0.6	81.7	17.7	82.2
34	KUNMANYO-6	55.15	2.53		11.89		30.08	0.38	100.03	0.7	81.2	18.0	81.9
35	KUNMANYO-6	54.90	2.97		11.93	0.32	30.03	0.39	100.54	0.8	80.8	18.5	81.4
36	KUNMANYO-6	55.52	2.65		12.36		29.83	0.50	100.86	1.0	80.4	18.7	81.1
37	KUNMANYO-6	55.09	2.76		12.02		29.77	0.39	100.03	0.8	80.9	18.3	81.5
38	KUNMANYO-6	55.73	2.63		12.00		29.97	0.46	100.79	0.9	80.9	18.2	81.7
39	KUNMANYO-6	54.51	2.83		11.98	0.34	29.75	0.41	99.82	0.8	80.5	18.7	81.1
40	KUNMANYO-7	55.54	2.27	0.32	11.22	0.31	29.68	0.84	100.18	1.6	80.8	17.6	82.1
41	KUNMANYO-7	55.15	2.59	0.16	11.80	0.46	30.11	0.31	100.58	0.6	80.9	18.5	81.4
42	KUNMANYO-7	54.40	2.76	0.16	11.71	0.31	29.60	0.36	99.30	0.7	80.9	18.4	81.4
43	KUNMANYO-7	54.98	2.82		11.60		29.67	0.27	99.34	0.5	81.6	17.9	82.0
44	KUNMANYO-7	55.00	2.91		11.48	0.27	29.72	0.24	99.62	0.5	81.5	18.1	81.8
45	KUNMANYO-7	55.20	2.70	0.23	11.82	0.21	29.88	0.31	100.35	0.6	81.1	18.3	81.6
46	KUNMANYO-7	53.38	3.65	0.39	11.42	0.28	29.52	0.36	99.00	0.7	81.2	18.1	81.8
47	KUNMANYO-7	55.13	2.63		12.13	0.32	29.60	0.29	100.10	0.6	80.4	19.0	80.9
48	KUNMANYO-7	54.68	2.82		12.27	0.44	29.34	0.32	99.87	0.6	79.9	19.4	80.4
49	KUNMANYO-7	55.07	2.46	0.35	12.16		29.70	0.34	100.08	0.7	80.8	18.6	81.3
50	KUNMANYO-7	54.98	2.99	0.25	11.46	0.35	29.58	0.38	99.99	0.7	81.1	18.2	81.7
51	KUNMANYO-7	54.55	2.95	0.29	11.66		29.57	0.48	99.50	0.9	81.1	17.9	81.9
52	KUNMANYO-7	54.75	3.16		11.93	0.19	29.62	0.56	100.21	1.1	80.4	18.5	81.3
53	KUNMANYO-7	54.77	2.85		12.02	0.28	29.52	0.50	99.94	1.0	80.3	18.8	81.1
54	KUNMANYO-7	54.34	3.00		12.18	0.18	29.47	0.41	99.58	0.8	80.3	18.9	81.0
55	KUNMANYO-7	54.87	2.63	0.38	11.81	0.18	30.23	0.38	100.48	0.7	81.2	18.1	81.8
56	KUNMANYO-7	55.58	2.66		11.42	0.30	30.25	0.42	100.63	0.8	81.5	17.7	82.1
57	KUNMANYO-7	54.66	2.63		11.21	0.30	30.15	0.50	99.45	1.0	81.6	17.5	82.4

Note. The results of SEM–EDS analyses are listed in weight %. The proportion of pyroxene components is stated in mol.%.

TABLE S3. COMPOSITION OF CLINOPYROXENE IN THE IKEN NICKEL DEPOSIT,
KUN-MANIE COMPLEX, AMUR OBLAST, RUSSIA

#	Specimen	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MgO	CaO	Na ₂ O	Total	Wo	En	Fs	Aeg	Mg#
1	KUNMANYO-2	51.41	0.82	5.03	0.53	5.07	14.20	21.76	1.09	99.91	45.9	41.6	8.3	4.2	83.3
2	KUNMANYO-3	52.84	0.68	4.69	0.70	4.26	14.41	22.11	1.24	100.93	46.3	42.0	7.0	4.7	85.8
3	KUNMANYO-3	52.91	0.73	4.74	0.58	4.54	14.06	21.70	1.37	100.63	45.9	41.4	7.5	5.2	84.7
4	KUNMANYO-3	51.47	0.68	5.06	0.58	4.85	14.39	21.55	1.19	99.77	45.4	42.1	8.0	4.5	84.1
5	KUNMANYO-3	52.05	0.93	5.14	0.56	4.54	14.69	21.59	1.23	100.73	45.2	42.8	7.4	4.7	85.2
6	KUNMANYO-3	52.01	0.67	4.67	0.53	4.46	14.41	21.34	1.19	99.28	45.4	42.6	7.4	4.6	85.2
7	KUNMANYO-3	51.88	0.75	5.25	0.57	4.84	14.39	21.70	1.27	100.65	45.4	41.9	7.9	4.8	84.1
8	KUNMANYO-4	52.63	0.62	5.01	0.58	4.57	14.51	22.30	1.31	101.53	46.0	41.7	7.4	4.9	85.0
9	KUNMANYO-5	52.99	0.83	4.99	0.56	4.66	14.64	22.00	1.25	101.92	45.6	42.2	7.5	4.7	84.9
10	KUNMANYO-5	53.29	0.63	4.93	0.44	4.54	14.44	21.87	1.27	101.41	45.7	42.0	7.4	4.8	85.0
11	KUNMANYO-5	51.43	0.88	5.29	0.56	4.75	14.00	21.28	1.20	99.39	45.6	41.8	7.9	4.7	84.0
12	KUNMANYO-5	51.92	0.78	5.37	0.47	4.75	13.98	21.38	1.39	100.04	45.4	41.3	7.9	5.3	84.0
13	KUNMANYO-6	52.63	0.68	4.97	0.57	4.81	14.41	22.09	1.27	101.43	45.8	41.6	7.8	4.8	84.2
14	KUNMANYO-6	52.56	0.88	5.21	0.48	4.79	14.43	21.77	1.19	101.31	45.6	42.1	7.8	4.5	84.3
15	KUNMANYO-6	52.76	0.72	5.18	0.57	4.84	14.68	21.88	1.15	101.78	45.4	42.4	7.8	4.3	84.4
16	KUNMANYO-6	52.05	0.82	5.23	0.51	5.24	14.39	21.70	1.11	101.05	45.4	41.9	8.6	4.2	83.0
17	KUNMANYO-6	51.75	0.73	5.20	0.56	4.86	14.26	22.12	1.36	100.84	45.9	41.2	7.9	5.1	84.0
18	KUNMANYO-6	51.88	0.93	5.12	0.53	4.85	14.08	21.81	1.12	100.32	46.2	41.5	8.0	4.3	83.8
19	KUNMANYO-6	51.58	0.83	5.16	0.56	5.20	14.26	21.70	1.21	100.50	45.4	41.5	8.5	4.6	83.0
20	KUNMANYO-6	52.26	0.90	4.99	0.70	4.89	14.41	21.91	1.15	101.21	45.8	41.9	8.0	4.3	84.0
21	KUNMANYO-7	50.10	0.75	6.75	1.43	5.57	14.39	20.68	1.37	101.04	43.5	42.1	9.1	5.2	82.2
22	KUNMANYO-7	51.11	0.95	4.97	0.53	4.82	14.11	21.42	1.24	99.15	45.5	41.7	8.0	4.8	83.9
23	KUNMANYO-7	51.62	0.87	4.97	0.56	4.57	14.20	21.49	1.21	99.49	45.7	42.0	7.6	4.7	84.7
24	KUNMANYO-7	51.97	0.82	5.06	0.60	4.63	14.13	21.73	1.37	100.31	45.8	41.4	7.6	5.2	84.5
25	KUNMANYO-7	52.24	0.80	4.99	0.53	4.40	14.23	21.95	1.35	100.49	46.1	41.6	7.2	5.1	85.2
26	KUNMANYO-7	52.09	0.80	5.06	0.44	4.70	14.51	21.49	1.24	100.33	45.2	42.4	7.7	4.7	84.6
27	KUNMANYO-7	51.71	0.77	5.16	0.42	4.71	14.24	21.17	1.17	99.35	45.3	42.4	7.9	4.5	84.4
28	KUNMANYO-7	51.69	0.97	5.44	0.80	4.75	14.49	21.38	1.46	100.98	44.6	42.1	7.7	5.5	84.5

29	KUNMANYO-7	52.56	0.73	5.18	0.48	4.43	14.33	21.79	1.32	100.82	45.8	41.9	7.3	5.0	85.2
30	KUNMANYO-7	52.31	0.97	5.16	0.50	4.43	14.11	21.93	1.37	100.78	46.2	41.3	7.3	5.2	85.0
31	KUNMANYO-7	52.56	0.82	4.99	0.45	4.43	14.31	21.81	1.54	100.91	45.5	41.5	7.2	5.8	85.2
32	KUNMANYO-7	52.84	1.15	4.84	0.64	4.49	14.21	21.87	1.31	101.35	46.0	41.6	7.4	5.0	84.9
33	KUNMANYO-7	52.16	0.82	5.08	0.56	4.72	14.36	22.01	1.33	101.04	45.8	41.6	7.7	5.0	84.4
34	KUNMANYO-7	51.84	0.83	5.29	0.44	4.91	14.21	21.58	1.15	100.25	45.7	41.8	8.1	4.4	83.8
35	KUNMANYO-7	51.67	0.73	5.01	0.57	4.86	14.53	21.59	1.09	100.05	45.4	42.5	8.0	4.1	84.2
36	KUNMANYO-7	51.30	0.73	4.82	0.44	4.53	13.96	21.55	1.24	98.57	46.1	41.5	7.6	4.8	84.6

Note. The results of SEM–EDS analyses are listed in weight %.The proportion of pyroxene components is stated in mol.%.

TABLE S4. COMPOSITION OF PLAGIOCLASE
IN THE IKEN NICKEL DEPOSIT,
KUN-MANIE COMPLEX, AMUR OBLAST, RUSSIA

#	Specimen	SiO ₂	Al ₂ O ₃	CaO	FeO	Na ₂ O	K ₂ O	Total	Or	Ab	An
1	KUNMANYO-1	60.80	26.57	7.57		7.02		101.96	0.0	62.7	37.3
2	KUNMANYO-1	60.78	24.98	6.53	0.54	7.43		100.26	0.0	67.3	32.7
3	KUNMANYO-1	60.14	25.43	7.14		6.96		99.67	0.0	63.8	36.2
4	KUNMANYO-2	60.80	25.60	7.39	0.40	7.18		101.37	0.0	63.7	36.3
5	KUNMANYO-2	61.10	25.96	7.23	0.39	7.06		101.74	0.0	63.9	36.1
6	KUNMANYO-3	60.01	25.83	7.44		6.69		99.97	0.0	61.9	38.1
7	KUNMANYO-3	59.39	26.55	7.65		6.65		100.24	0.0	61.1	38.9
8	KUNMANYO-3	59.52	26.09	7.58		6.47		99.66	0.0	60.7	39.3
9	KUNMANYO-3	58.94	25.70	7.75		6.94		99.33	0.0	61.8	38.2
10	KUNMANYO-3	58.68	25.87	7.54		6.85		98.94	0.0	62.2	37.8
11	KUNMANYO-3	58.77	25.45	7.70		6.74	0.24	98.90	1.4	60.4	38.2
12	KUNMANYO-3	59.20	25.55	7.88		6.58	0.28	99.49	1.7	59.2	39.2
13	KUNMANYO-3	59.86	24.94	6.70		7.36		98.86	0.0	66.5	33.5
14	KUNMANYO-3	58.04	25.68	7.99		6.40		98.11	0.0	59.2	40.8
15	KUNMANYO-4	59.86	26.13	7.79		6.65		100.43	0.0	60.7	39.3
16	KUNMANYO-4	60.22	25.17	6.97		6.85		99.21	0.0	64.0	36.0
17	KUNMANYO-4	59.90	25.92	7.85		6.78	0.30	100.75	1.7	59.9	38.3
18	KUNMANYO-4	60.82	25.98	7.95		6.89		101.64	0.0	61.1	38.9
19	KUNMANYO-4	60.78	26.00	7.74		7.18		101.70	0.0	62.7	37.3
20	KUNMANYO-5	60.39	26.60	8.07		6.59		101.65	0.0	59.6	40.4
21	KUNMANYO-5	58.98	25.89	7.77	0.27	6.63	0.41	99.95	2.4	59.2	38.4
22	KUNMANYO-5	58.88	25.66	7.57	0.28	6.70		99.09	0.0	61.6	38.4
23	KUNMANYO-5	60.54	25.90	7.72		7.08	0.10	101.34	0.6	62.0	37.4
24	KUNMANYO-5	60.93	25.41	7.19	0.19	7.12	0.14	100.98	0.8	63.7	35.5
25	KUNMANYO-5	60.67	25.96	7.57	0.32	6.92	0.12	101.56	0.7	61.9	37.4
26	KUNMANYO-5	59.02	25.62	7.56		6.56		98.76	0.0	61.1	38.9
27	KUNMANYO-5	59.94	24.94	6.84	0.40	7.06		99.18	0.0	65.1	34.9
28	KUNMANYO-5	60.71	24.83	6.62		7.14		99.30	0.0	66.1	33.9
29	KUNMANYO-5	58.58	25.43	7.57	0.48	6.47		98.53	0.0	60.7	39.3
30	KUNMANYO-5	59.73	26.04	7.67		6.71		100.15	0.0	61.3	38.7
31	KUNMANYO-6	59.82	26.13	7.85		6.71	0.24	100.75	1.4	59.9	38.7
32	KUNMANYO-6	57.78	25.19	9.70		6.40	0.31	99.38	1.7	53.5	44.8
33	KUNMANYO-7	59.13	25.64	7.15	0.35	7.13		99.40	0.0	64.3	35.7
34	KUNMANYO-7	58.58	25.56	7.72		6.55	0.29	98.70	1.7	59.5	38.8
35	KUNMANYO-7	59.52	25.47	7.63	0.35	6.78	0.14	99.89	0.8	61.1	38.0
36	KUNMANYO-7	59.35	25.26	7.28	0.28	6.87		99.04	0.0	63.1	36.9
37	KUNMANYO-7	60.69	25.28	6.69	0.64	7.27		100.57	0.0	66.3	33.7
38	KUNMANYO-7	58.83	25.72	7.68		6.73	0.22	99.18	1.3	60.5	38.2

Note. The results of SEM–EDS analyses are listed in weight %.

TABLE S5. COMPOSITION OF MEMBERS
OF THE SPINEL–HERCYNITE SERIES
IN THE IKEN NICKEL DEPOSIT, KUN-MANIE COMPLEX, AMUR OBLAST, RUSSIA

#	Specimen	Al ₂ O ₃	Cr ₂ O ₃	Fe ₂ O ₃ calc.	V ₂ O ₃	FeO total	FeO calc.	MgO	NiO	Total
1	KUNMANYO-1	51.60	11.27	3.49		23.27	20.13	12.97		99.46
2	KUNMANYO-1	56.40	8.46	0.94		21.61	20.76	13.13		99.69
3	KUNMANYO-1	55.91	8.32	2.59		22.39	20.06	13.71		100.59
4	KUNMANYO-1	46.92	11.27	8.81		31.15	23.22	10.73		100.95
5	KUNMANYO-1	51.62	10.63	4.42		23.56	19.59	13.35		99.60
6	KUNMANYO-1	51.15	10.71	4.70		23.59	19.37	13.38		99.30
7	KUNMANYO-2	48.84	12.99	4.21		24.08	20.29	12.11	0.59	99.03
8	KUNMANYO-2	50.18	12.48	4.39		24.42	20.47	12.77		100.29
9	KUNMANYO-2	49.88	12.57	4.48		24.51	20.48	12.69		100.10
10	KUNMANYO-2	50.86	12.35	3.81		23.97	20.54	12.82		100.38
11	KUNMANYO-2	49.37	12.76	5.26		24.56	19.83	13.10		100.32
12	KUNMANYO-3	51.62	10.48	3.84		24.19	20.74	12.52		99.19
13	KUNMANYO-3	51.55	10.51	3.99		24.04	20.45	12.70		99.20
14	KUNMANYO-3	52.06	11.02	3.27		24.38	21.44	12.30		100.09
15	KUNMANYO-3	51.94	10.03	4.12		23.99	20.29	12.85		99.22
16	KUNMANYO-3	50.81	11.91	3.41		23.54	20.47	12.62		99.22
17	KUNMANYO-3	50.39	11.49	4.14		25.37	21.64	11.87		99.53
18	KUNMANYO-3	50.17	11.65	2.93		25.38	22.75	10.90		98.39
19	KUNMANYO-3	50.00	11.56	3.36		25.64	22.62	10.99		98.53
20	KUNMANYO-3	47.82	12.72	4.10		24.71	21.02	11.24	0.51	97.41
21	KUNMANYO-3	48.26	12.82	4.31		24.51	20.63	11.99		98.01
22	KUNMANYO-4	53.81	9.73	2.90		22.28	19.67	13.55		99.66
23	KUNMANYO-4	52.07	11.96	2.65		22.42	20.04	13.18		99.89
24	KUNMANYO-4	52.28	11.88	2.46		22.54	20.33	13.03		99.98
25	KUNMANYO-4	50.17	13.08	4.11		23.85	20.15	13.03		100.54
26	KUNMANYO-4	50.28	11.85	4.38		25.36	21.42	12.11		100.04
27	KUNMANYO-4	49.96	11.60	4.48		25.36	21.33	11.99		99.36
28	KUNMANYO-4	50.01	13.40	3.28	0.40	23.34	20.39	12.82		100.30
29	KUNMANYO-4	50.49	12.74	3.51		23.08	19.92	13.05		99.71
30	KUNMANYO-4	49.33	12.54	4.57		25.70	21.59	11.87		99.90
31	KUNMANYO-4	49.49	12.58	4.96		26.35	21.89	11.87		100.79
32	KUNMANYO-4	48.11	12.92	5.12		26.81	22.20	11.28		99.63
33	KUNMANYO-4	54.85	8.54	4.10		23.34	19.65	13.96		101.10
34	KUNMANYO-4	56.80	7.44	2.58		21.75	19.42	14.18		100.43
35	KUNMANYO-4	50.83	11.50	4.41		24.56	20.60	12.70		100.03
36	KUNMANYO-5	51.17	11.98	3.50	0.28	24.70	21.55	12.27		100.75
37	KUNMANYO-5	49.58	12.07	5.35		24.65	19.83	12.77	0.47	100.08
38	KUNMANYO-5	49.01	12.03	5.19		26.39	21.72	11.48	0.38	99.81
39	KUNMANYO-5	53.49	10.13	3.71		22.84	19.50	13.68	0.27	100.78
40	KUNMANYO-5	51.62	11.88	2.81		21.43	18.90	13.45	0.39	99.05
41	KUNMANYO-5	48.26	12.64	6.64		23.17	17.19	14.15	0.57	99.46
42	KUNMANYO-5	48.20	13.24	4.84		24.49	20.13	12.27	0.41	99.09

43	KUNMANYO-5	50.09	12.16	4.55		24.52	20.42	12.44	0.51	100.18
44	KUNMANYO-5	48.73	13.12	4.43		24.65	20.66	12.27		99.21
45	KUNMANYO-5	49.32	12.44	4.36		23.63	19.70	12.54	0.56	98.93
46	KUNMANYO-5	50.60	13.02	2.37		22.64	20.50	12.55		99.05
47	KUNMANYO-6	51.41	10.98	4.06		23.34	19.68	12.93	0.53	99.60
48	KUNMANYO-6	50.52	11.74	4.35		23.81	19.90	13.02		99.53
49	KUNMANYO-6	47.94	12.89	4.41		26.05	22.09	11.09		98.41
50	KUNMANYO-6	47.73	12.91	5.11		26.42	21.82	11.34		98.91
51	KUNMANYO-6	48.45	12.74	5.08		26.71	22.14	11.39		99.80
52	KUNMANYO-6	48.52	12.83	5.42		26.55	21.67	11.79		100.23
53	KUNMANYO-6	47.61	13.23	4.74		25.13	20.86	11.82		98.26
54	KUNMANYO-6	50.30	11.03	4.34		25.00	21.09	12.07		98.83
55	KUNMANYO-6	50.03	12.06	3.58		22.49	19.27	13.07		98.01
56	KUNMANYO-6	47.48	13.12	5.04		26.09	21.55	11.16	0.50	98.86
57	KUNMANYO-6	47.77	13.07	4.52		25.95	21.89	11.21		98.45
58	KUNMANYO-7	47.26	13.69	4.54	0.22	23.95	19.87	12.14	0.43	98.14
59	KUNMANYO-7	55.44	7.78	2.08		21.45	19.58	13.35	0.31	98.54
60	KUNMANYO-7	47.84	13.21	4.07		23.63	19.97	12.39	0.52	98.43
61	KUNMANYO-7	48.16	13.23	4.09	0.24	23.81	20.13	12.09	0.48	98.42
62	KUNMANYO-7	48.14	13.08	4.44	0.24	23.31	19.31	12.67	0.33	98.21
63	KUNMANYO-7	48.60	13.17	4.31		23.41	19.54	12.62	0.39	98.62
64	KUNMANYO-7	49.75	12.16	4.05		23.65	20.00	12.54	0.28	98.79
65	KUNMANYO-7	49.54	12.42	4.48		24.38	20.35	12.37	0.41	99.57
66	KUNMANYO-7	51.60	10.32	3.45		23.44	20.33	12.50	0.18	98.39
67	KUNMANYO-7	49.11	12.61	4.04	0.10	22.96	19.33	12.74	0.41	98.33

Note. The results of SEM–EDS analyses are listed in weight %.

TABLE S6. COMPOSITION OF PYRRHOTITE
IN THE IKEN NICKEL DEPOSIT,
KUN-MANIE COMPLEX, AMUR OBLAST, RUSSIA

#	Specimen	Fe	Ni	S	Total	Fe	Ni	S	Fe+Ni
1	KUNMANYO-1	62.98		38.71	101.69	48.3	0.0	51.7	48.3
2	KUNMANYO-1	61.50		38.77	100.27	47.7	0.0	52.3	47.7
3	KUNMANYO-1	61.60		38.49	100.09	47.9	0.0	52.1	47.9
4	KUNMANYO-1	62.34		38.80	101.14	48.0	0.0	52.0	48.0
5	KUNMANYO-1	62.19		38.88	101.07	47.9	0.0	52.1	47.9
6	KUNMANYO-1	62.71		38.74	101.45	48.2	0.0	51.8	48.2
7	KUNMANYO-1	61.75		38.50	100.25	47.9	0.0	52.1	47.9
8	KUNMANYO-1	62.08		39.05	101.13	47.7	0.0	52.3	47.7
9	KUNMANYO-1	62.36		39.13	101.49	47.8	0.0	52.2	47.8
10	KUNMANYO-2	62.25		38.60	100.85	48.1	0.0	51.9	48.1
11	KUNMANYO-2	62.70		39.20	101.90	47.9	0.0	52.1	47.9
12	KUNMANYO-2	62.71		39.03	101.74	48.0	0.0	52.0	48.0
13	KUNMANYO-2	62.56		38.59	101.15	48.2	0.0	51.8	48.2
14	KUNMANYO-3	60.85		38.47	99.32	47.6	0.0	52.4	47.6
15	KUNMANYO-3	60.84		38.31	99.15	47.7	0.0	52.3	47.7
16	KUNMANYO-3	61.95		38.62	100.57	47.9	0.0	52.1	47.9
17	KUNMANYO-3	61.86		38.86	100.72	47.7	0.0	52.3	47.7
18	KUNMANYO-3	62.59		39.32	101.91	47.7	0.0	52.3	47.7
19	KUNMANYO-3	62.48		38.85	101.33	48.0	0.0	52.0	48.0
20	KUNMANYO-3	61.36		38.18	99.54	48.0	0.0	52.0	48.0
21	KUNMANYO-3	60.97		38.37	99.34	47.7	0.0	52.3	47.7
22	KUNMANYO-3	61.15		38.14	99.29	47.9	0.0	52.1	47.9
23	KUNMANYO-3	61.29		38.10	99.39	48.0	0.0	52.0	48.0
24	KUNMANYO-3	61.54		37.77	99.31	48.3	0.0	51.7	48.3
25	KUNMANYO-4	59.32	1.28	38.52	99.12	46.5	1.0	52.6	47.4
26	KUNMANYO-5	60.70		38.24	98.94	47.7	0.0	52.3	47.7
27	KUNMANYO-5	61.89		38.33	100.22	48.1	0.0	51.9	48.1
28	KUNMANYO-5	61.88		38.33	100.21	48.1	0.0	51.9	48.1
29	KUNMANYO-5	60.65		38.31	98.96	47.6	0.0	52.4	47.6
30	KUNMANYO-5	61.01		38.27	99.28	47.8	0.0	52.2	47.8
31	KUNMANYO-5	60.85		38.21	99.06	47.8	0.0	52.2	47.8
32	KUNMANYO-5	60.57		38.36	98.93	47.5	0.0	52.5	47.5
33	KUNMANYO-5	60.71		38.34	99.05	47.6	0.0	52.4	47.6
34	KUNMANYO-5	60.97		37.96	98.93	48.0	0.0	52.0	48.0
35	KUNMANYO-5	60.39		38.00	98.39	47.7	0.0	52.3	47.7
36	KUNMANYO-5	60.27		38.15	98.42	47.6	0.0	52.4	47.6
37	KUNMANYO-6	61.33		38.47	99.80	47.8	0.0	52.2	47.8
38	KUNMANYO-6	61.39		38.19	99.58	48.0	0.0	52.0	48.0
39	KUNMANYO-6	61.76		38.47	100.23	48.0	0.0	52.0	48.0
40	KUNMANYO-6	61.75		38.32	100.07	48.1	0.0	51.9	48.1
41	KUNMANYO-6	60.17		38.01	98.18	47.6	0.0	52.4	47.6
42	KUNMANYO-6	60.46		38.01	98.47	47.7	0.0	52.3	47.7
43	KUNMANYO-6	60.63		38.20	98.83	47.7	0.0	52.3	47.7

44	KUNMANYO-6	60.71	37.68	98.39	48.0	0.0	52.0	48.0
45	KUNMANYO-6	60.82	37.61	98.43	48.1	0.0	51.9	48.1
46	KUNMANYO-6	60.76	37.90	98.66	47.9	0.0	52.1	47.9
47	KUNMANYO-6	60.80	38.17	98.97	47.8	0.0	52.2	47.8
48	KUNMANYO-6	61.12	37.91	99.03	48.1	0.0	51.9	48.1

Note. The results of SEM–EDS analyses are first listed in weight %, then expressed in at.%.

TABLE S7. COMPOSITION OF PENTLANDITE
IN THE IKEN NICKEL DEPOSIT,
KUN-MANIE COMPLEX, AMUR OBLAST, RUSSIA

#	Specimen	Fe	Co	Ni	S	Total	Fe	Co	Ni	S	Σme
1	KUNMANYO-1	34.64	0.70	31.83	33.69	100.86	4.74	0.09	4.14	8.03	8.97
2	KUNMANYO-1	35.24	0.98	31.80	33.25	101.27	4.82	0.13	4.14	7.92	9.08
3	KUNMANYO-1	33.78	0.37	33.77	33.94	101.86	4.58	0.05	4.36	8.02	8.98
4	KUNMANYO-1	33.76	0.58	33.12	33.53	100.99	4.62	0.08	4.31	7.99	9.01
5	KUNMANYO-1	34.07	0.49	33.65	33.40	101.61	4.64	0.06	4.36	7.93	9.07
6	KUNMANYO-1	35.39	0.48	32.74	33.18	101.79	4.82	0.06	4.24	7.87	9.13
7	KUNMANYO-1	34.09	0.94	32.76	34.01	101.80	4.62	0.12	4.23	8.03	8.97
8	KUNMANYO-1	33.41	0.95	33.54	33.59	101.49	4.55	0.12	4.35	7.97	9.03
9	KUNMANYO-2	35.07	0.71	31.56	33.72	101.06	4.79	0.09	4.10	8.02	8.98
10	KUNMANYO-2	35.80	0.40	31.34	33.52	101.06	4.89	0.05	4.08	7.98	9.02
11	KUNMANYO-2	34.77	0.39	33.05	33.66	101.87	4.72	0.05	4.27	7.96	9.04
12	KUNMANYO-3	33.67	0.72	32.41	33.03	99.83	4.66	0.09	4.27	7.97	9.03
13	KUNMANYO-3	33.47	0.95	32.09	33.17	99.68	4.64	0.12	4.23	8.01	8.99
14	KUNMANYO-3	34.08	0.91	32.50	32.88	100.37	4.70	0.12	4.27	7.91	9.09
15	KUNMANYO-3	34.43	0.58	32.87	33.28	101.16	4.71	0.08	4.28	7.93	9.07
16	KUNMANYO-3	35.28	0.50	32.03	34.14	101.95	4.77	0.06	4.12	8.04	8.96
17	KUNMANYO-3	34.10	0.66	33.06	32.89	100.71	4.69	0.09	4.33	7.89	9.11
18	KUNMANYO-3	33.63	0.68	32.77	32.98	100.06	4.65	0.09	4.31	7.95	9.05
19	KUNMANYO-3	34.94	0.71	31.52	32.67	99.84	4.85	0.09	4.16	7.90	9.10
20	KUNMANYO-4	33.84	0.58	33.64	33.19	101.25	4.63	0.08	4.38	7.91	9.09
21	KUNMANYO-4	33.79	0.54	33.60	33.00	100.93	4.64	0.07	4.39	7.90	9.10
22	KUNMANYO-4	32.55	0.73	34.47	33.30	101.05	4.46	0.09	4.49	7.95	9.05
23	KUNMANYO-5	34.20	0.60	31.15	32.70	98.65	4.79	0.08	4.15	7.98	9.02
24	KUNMANYO-5	34.13	0.69	31.79	32.85	99.46	4.75	0.09	4.21	7.96	9.04
25	KUNMANYO-5	34.53	0.69	32.03	32.98	100.23	4.77	0.09	4.21	7.93	9.07
26	KUNMANYO-5	34.35	0.76	31.56	33.31	99.98	4.74	0.10	4.15	8.01	8.99
27	KUNMANYO-5	33.96	0.83	32.09	32.83	99.71	4.71	0.11	4.24	7.94	9.06
28	KUNMANYO-5	35.33	0.78	32.07	33.48	101.66	4.81	0.10	4.15	7.94	9.06
29	KUNMANYO-5	35.45	0.77	31.75	33.48	101.45	4.83	0.10	4.12	7.95	9.05
30	KUNMANYO-5	33.73	0.77	31.41	33.18	99.09	4.69	0.10	4.16	8.04	8.96
31	KUNMANYO-5	34.36	0.75	31.60	33.24	99.95	4.75	0.10	4.15	8.00	9.00
32	KUNMANYO-5	34.25	0.62	31.23	32.64	98.74	4.80	0.08	4.16	7.96	9.04
33	KUNMANYO-5	34.21	0.80	31.68	33.36	100.05	4.72	0.10	4.16	8.02	8.98
34	KUNMANYO-5	34.67	0.81	31.53	33.33	100.34	4.77	0.11	4.13	7.99	9.01
35	KUNMANYO-5	34.47	0.84	32.03	33.10	100.44	4.75	0.11	4.20	7.94	9.06
36	KUNMANYO-5	34.02	0.94	31.42	32.87	99.25	4.74	0.12	4.16	7.97	9.03
37	KUNMANYO-6	34.47	0.73	32.17	32.88	100.25	4.76	0.10	4.23	7.91	9.09
38	KUNMANYO-6	33.71	0.70	34.33	32.88	101.62	4.61	0.09	4.47	7.83	9.17
39	KUNMANYO-6	32.58	0.99	33.40	33.16	100.13	4.50	0.13	4.39	7.98	9.02
40	KUNMANYO-6	33.56	0.95	33.14	33.03	100.68	4.62	0.12	4.34	7.92	9.08
41	KUNMANYO-6	33.61	1.02	32.97	32.91	100.51	4.63	0.13	4.33	7.91	9.09
42	KUNMANYO-6	36.60	1.01	28.77	32.80	99.18	5.10	0.13	3.81	7.96	9.04
43	KUNMANYO-6	33.46	0.64	33.58	33.19	100.87	4.59	0.08	4.39	7.94	9.06

44	KUNMANYO-7	35.20	0.94	31.53	32.89	100.56	4.85	0.12	4.13	7.89	9.11
45	KUNMANYO-7	34.92	0.96	30.84	32.73	99.45	4.86	0.13	4.08	7.93	9.07
46	KUNMANYO-7	33.24	0.72	32.56	32.37	98.89	4.66	0.10	4.34	7.90	9.10
47	KUNMANYO-7	33.61	0.53	32.10	32.88	99.12	4.69	0.07	4.26	7.99	9.01
48	KUNMANYO-7	33.50	0.85	31.99	32.79	99.13	4.67	0.11	4.25	7.97	9.03
49	KUNMANYO-7	33.50	0.51	31.73	32.38	98.12	4.72	0.07	4.26	7.95	9.05
50	KUNMANYO-7	34.16	0.72	32.20	33.00	100.08	4.72	0.09	4.24	7.95	9.05

Note. The results of SEM–EDS analyses are first listed in weight %, then in atoms per formula unit (*apfu*) based on a total of 17 *apfu*.

TABLE S8. COMPOSITION OF TROILITE LAMELLAE
IN THE IKEN NICKEL DEPOSIT,
KUN-MANIE COMPLEX, AMUR OBLAST, RUSSIA

#	Specimen	Fe	Ni	S	Total	Fe	Ni	S	Fe+Ni
1	KUNMANYO-1	63.6		36.54	100.10	50.0	0.0	50.0	50.0
2	KUNMANYO-1	64.0		36.33	100.34	50.3	0.0	49.7	50.3
3	KUNMANYO-1	64.4		36.53	100.89	50.3	0.0	49.7	50.3
4	KUNMANYO-1	63.6		36.59	100.20	49.9	0.0	50.1	49.9
5	KUNMANYO-1	64.3		36.54	100.81	50.2	0.0	49.8	50.2
6	KUNMANYO-2	64.6		36.62	101.21	50.3	0.0	49.7	50.3
7	KUNMANYO-2	65.3		36.72	102.02	50.5	0.0	49.5	50.5
8	KUNMANYO-2	65.0		37.13	102.12	50.1	0.0	49.9	50.1
9	KUNMANYO-3	62.7		36.21	98.90	49.8	0.0	50.2	49.8
10	KUNMANYO-3	63.4		36.33	99.70	50.0	0.0	50.0	50.0
11	KUNMANYO-3	64.5		37.09	101.59	50.0	0.0	50.0	50.0
12	KUNMANYO-3	64.3		36.67	100.99	50.2	0.0	49.8	50.2
13	KUNMANYO-3	64.8		37.01	101.85	50.1	0.0	49.9	50.1
14	KUNMANYO-3	65.1		36.80	101.85	50.4	0.0	49.6	50.4
15	KUNMANYO-5	63.3		36.02	99.35	50.2	0.0	49.8	50.2
16	KUNMANYO-5	62.8		36.03	98.78	50.0	0.0	50.0	50.0
17	KUNMANYO-5	63.2	0.59	36.58	100.33	49.6	0.4	50.0	50.0
18	KUNMANYO-6	62.9		36.73	99.67	49.6	0.0	50.4	49.6
19	KUNMANYO-6	63.9		36.31	100.21	50.3	0.0	49.7	50.3
20	KUNMANYO-6	64.0		36.43	100.46	50.2	0.0	49.8	50.2

Note. The troilite lamellae are hosted by pyrrhotite. The results of SEM-EDS analyses are first listed in weight %, followed by atomic proportions in at.%.

TABLE S9. COMPOSITION OF KAERSUTITE IN THE IKEN BODY,
KUN-MANIE COMPLEX, AMUR OBLAST, RUSSIA

#	Specimen	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MgO	CaO	Na ₂ O	K ₂ O	Total
1	KUNMANYO-1	42.19	4.72	13.40	0.61	7.45	14.29	11.84	2.43	2.19	99.12
2	KUNMANYO-1	42.53	4.64	13.40	0.79	7.22	14.39	11.82	2.51	2.01	99.31
3	KUNMANYO-2	41.05	4.82	12.96	0.80	7.28	13.80	11.50	2.62	1.96	96.79
4	KUNMANYO-2	41.91	4.59	12.92	0.50	7.60	14.00	11.60	2.53	1.84	97.49
5	KUNMANYO-2	42.25	5.54	13.28	0.73	7.23	13.58	11.92	2.59	2.06	99.18
6	KUNMANYO-3	41.95	5.15	13.74	0.95	7.38	13.75	11.98	2.45	2.11	99.46
7	KUNMANYO-3	41.93	4.75	13.04	0.86	7.74	14.01	11.81	2.80	2.02	98.96
8	KUNMANYO-3	41.97	4.87	13.19	0.79	7.24	13.73	11.85	2.62	2.00	98.26
9	KUNMANYO-3	42.06	4.67	12.85	0.85	7.65	13.91	11.64	2.59	1.89	98.11
10	KUNMANYO-3	42.27	4.35	13.02	0.88	7.36	14.36	11.64	2.51	2.24	98.63
11	KUNMANYO-3	42.66	5.14	13.93	0.80	6.69	13.68	11.80	2.47	2.23	99.40
12	KUNMANYO-3	41.18	4.49	13.42	0.85	7.14	13.47	11.91	2.48	2.11	97.05
13	KUNMANYO-3	41.46	5.24	13.55	0.85	7.11	13.27	11.47	2.43	2.11	97.49
14	KUNMANYO-3	41.33	5.79	13.15	0.89	6.97	13.47	11.88	2.43	2.11	98.02
15	KUNMANYO-3	42.17	5.22	12.81	0.98	7.08	13.20	11.81	2.31	2.16	97.74
16	KUNMANYO-4	42.34	5.07	13.40	0.73	7.36	14.13	12.12	2.63	2.01	99.79
17	KUNMANYO-4	42.44	4.62	13.21	0.85	7.49	14.31	11.85	2.56	2.13	99.46
18	KUNMANYO-5	41.85	4.84	13.51	0.66	7.54	14.31	11.64	2.40	2.13	98.88
19	KUNMANYO-5	41.72	5.55	13.38	0.85	7.31	13.91	11.85	2.49	1.99	99.05
20	KUNMANYO-6	41.48	5.12	13.06	0.89	7.63	14.03	11.84	2.55	2.00	98.60
21	KUNMANYO-7	42.27	5.39	13.28	0.85	6.81	13.80	11.57	2.90	1.72	98.59
22	KUNMANYO-7	41.72	5.32	13.38	0.72	7.20	13.58	11.74	2.57	1.96	98.19
23	KUNMANYO-7	41.78	5.44	13.32	0.89	7.24	13.63	11.82	2.67	2.01	98.80
24	KUNMANYO-7	41.95	4.44	13.15	0.54	7.69	14.21	11.67	2.55	1.96	98.16
25	KUNMANYO-7	42.49	5.39	12.53	0.77	7.11	13.98	11.64	2.71	1.96	98.58
26	KUNMANYO-7	41.85	5.25	13.49	0.72	7.40	13.43	11.77	2.55	2.04	98.50
27	KUNMANYO-7	41.72	5.27	13.34	0.80	7.59	13.68	11.82	2.71	2.06	98.99

Note. The results of SEM–EDS analyses are listed in weight %.

TABLE S10. COMPOSITION OF TITANIAN PHLOGOPITE,
IKEN NICKEL DEPOSIT, KUN-MANIE COMPLEX, AMUR OBLAST, RUSSIA

#	Specimen	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MgO	BaO	Na ₂ O	K ₂ O	Total
1	KUNMANYO-1	38.23	8.16	14.44	0.53	6.92	18.66			12.29	99.23
2	KUNMANYO-3	38.81	4.99	15.00	0.66	6.25	20.28	1.61	0.89	10.28	98.77
3	KUNMANYO-3	36.48	7.44	14.11	0.66	8.95	16.57			11.96	96.17
4	KUNMANYO-3	36.73	7.07	14.28	0.66	8.79	17.25			11.66	96.44
5	KUNMANYO-7	37.25	9.82	14.32	0.76	8.21	16.45		0.26	11.76	98.83

Note. The results of SEM–EDS analyses are listed in weight %.

TABLE S11. COMPOSITION OF FLUORAPATITE IN THE IKEN NICKEL DEPOSIT,
KUN-MANIE COMPLEX, AMUR OBLAST, RUSSIA

#	Specimen	P ₂ O ₅	SiO ₂	CaO	FeO	MgO	Na ₂ O	F	Cl	O=Cl	O=F	Total	F	Cl	OH
1	KUNMANYO-2	41.84		55.34			0.54	2.80	0.42	0.09	1.18	99.67	72.3	5.8	21.9
2	KUNMANYO-2	41.86		54.97			0.40	2.87	0.39	0.09	1.21	99.19	74.3	5.4	20.3
3	KUNMANYO-2	42.18		54.90	0.57			2.92	0.40	0.09	1.23	99.65	75.2	5.5	19.3
4	KUNMANYO-2	42.05		54.74				3.28	0.45	0.10	1.38	99.04	84.6	6.2	9.1
5	KUNMANYO-3	42.05		54.29	0.48			2.05	0.55	0.12	0.86	98.43	53.6	7.7	38.7
6	KUNMANYO-3	41.98		54.28				2.10	0.43	0.10	0.88	97.81	55.1	6.0	38.9
7	KUNMANYO-3	42.28		54.53			0.44	2.22	0.39	0.09	0.93	98.84	57.7	5.4	36.9
8	KUNMANYO-4	42.09		54.78			0.58	2.58	0.46	0.10	1.09	99.30	66.7	6.4	26.9
9	KUNMANYO-4	42.12		54.39	0.53		0.50	2.74	0.42	0.09	1.15	99.45	70.8	5.8	23.4
10	KUNMANYO-4	42.02		54.16	0.69		0.53	2.47	0.54	0.12	1.04	99.25	64.1	7.5	28.4
11	KUNMANYO-5	41.38		54.39	0.45		0.50	2.77	0.46	0.10	1.17	98.68	72.3	6.4	21.3
12	KUNMANYO-5	41.02		53.58	0.51			2.76	0.42	0.09	1.16	97.03	73.0	6.0	21.0
13	KUNMANYO-5	41.38		53.44	0.64			2.38	0.40	0.09	1.00	97.15	62.9	5.7	31.4
14	KUNMANYO-6	40.97		54.81				2.40	0.78	0.18	1.01	97.77	63.3	11.0	25.7
15	KUNMANYO-6	41.73		54.60				2.09	0.64	0.14	0.88	98.04	54.8	9.0	36.2
16	KUNMANYO-6	41.54		54.01	0.63			1.97	0.65	0.15	0.83	97.82	51.9	9.2	38.9
17	KUNMANYO-6	39.62	1.33	52.69	0.49	1.14		2.09	0.66	0.15	0.88	96.99	55.5	9.4	35.1

Note. The results of SEM–EDS analyses are listed in weight %.

TABLE S12. COMPOSITION OF CHROMIAN MAGNETITE
IN THE IKEN NICKEL DEPOSIT,
KUN-MANIE COMPLEX, AMUR OBLAST, RUSSIA

#	Specimen	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	V ₂ O ₃	Fe ₂ O ₃ calc.	FeO total	FeO calc.	MgO	NiO	Total
1	KUNMANYO-1	0.55	1.85	8.46		56.25	79.03	28.41	1.79		97.31
2	KUNMANYO-1		0.87	9.50		56.43	81.27	30.49			97.29
3	KUNMANYO-1		0.00	6.97		60.43	84.86	30.48			97.88
4	KUNMANYO-3	0.65	0.89	9.00		55.33	80.74	30.95			96.82
5	KUNMANYO-5	1.47	2.48	9.30	0.59	51.11	75.61	29.62	0.99	0.71	96.27
6	KUNMANYO-6		0.70	5.69		59.36	83.30	29.89			95.63
7	KUNMANYO-6	1.17	1.97	9.24	0.65	53.59	73.92	25.70	3.33	0.67	96.32

Note. A rim of chromian magnetite is developed around a core of spinel–hercynite composition. The results of SEM–EDS analyses are listed in weight %.

TABLE S13. COMPOSITION OF MINERALS OF NOBLE METALS
IN THE IKEN NICKEL DEPOSIT, KUN-MANIE COMPLEX, AMUR OBLAST, RUSSIA

#	Sample	Pt Pt	Pd Pd	Ni Ni	Σ	Te Te	Bi Bi	Total Σ
1	KUNMANYO-2	26.66 0.55	4.02 0.15	4.42 0.30	1.00	61.10 1.92	3.75 0.07	99.95 2.00
2	KUNMANYO-3	13.15 0.26	13.63 0.49	4.12 0.27	1.01	63.00 1.88	6.10 0.11	100.00 1.99
#	Sample	Pt Pt	Fe Fe	Cu Cu	Σ	S S	As As	Total Σ
3	KUNMANYO-2	51.52 0.89	2.01 0.12	1.22 0.06	1.07	1.75 0.18	39.00 1.75	95.50 1.93
#	Sample	Ag	Te	Total				
4	KUNMANYO-1	62.36 1.99	37.64 1.01	100.00				
#	Sample	Ag Ag	Au Au	Total				
5	KUNMANYO-4	24.14 36.8	75.86 63.2	100.00				
#	Sample	Fe Fe	Ni Ni	Cu Cu	Ag Ag	S S	Total Fe+Ni	
6	KUNMANYO-6	37.21 5.52	17.35 2.45	0.00	13.70 1.05	30.84 7.97	99.10 7.97	
7	KUNMANYO-6	37.49 5.49	17.63 2.45	0.89 0.11	13.38 1.01	31.12 7.93	100.51 8.05	

Note. The results of SEM–EDS analyses are listed in weight % on the first line of each entry. It is expressed in at.% on the second line. Compositions #1 and 2 correspond to moncheite and merenskyite, respectively (moncheite – merenskyite – melonite solid-solution). Composition #3 pertains to sperrylite, #4 to hessite, #5 to Au–Ag alloy, and #6 and 7 to argentopentlandite.. The atom proportions were calculated on the basis of a total of 3 atoms (#1 – 4), a total of 100 atom % (#5), and a total of 17 atoms per formula unit (#6, 7).