

SUPPLEMENTAL TECHNICAL INFORMATION

Hemo-ilmenite Ore Technical Description

This particular ore is mainly comprised of the hemo-ilmenite mineral, a mix of hematite and ilmenite, and anorthosite (gangue mineral part of the feldspar group). The mined ore has an average TiO₂ grade of 32% by mass. The hemo-ilmenite has a TiO₂ grade of 38-39%, and the gangue a 0% TiO₂ grade. The hemo-ilmenite is made of micro lamellae of hematite in an ilmenite matrix. The primary (larger) hematite lamellae are 10-30 μm wide and the secondary ones are ~2 μm wide. The ilmenite also contains other elements in its structure, notably MgO. The hematite rich lamellae contain ~18% TiO₂ and ilmenite rich ones contain 46 - 48 % TiO₂ (including secondary hematite lamellae). In between secondary hematite lamellae, ~50% TiO₂ ilmenite can be found. To achieve 38-39% TiO₂ grade, hemo-ilmenite can be separated from gangue. To achieve ~47 % TiO₂, ilmenite has to be separated from hematite in the hemo-ilmenite mineral. To achieve +50 % TiO₂, iron has to be removed from ilmenite structure (likely by hydrometallurgical, pyrometallurgical or other technique).

Spot Analysis

In Fig. 1 below (and supporting Table 1 to its right), chemical analysis is shown for points depicted (spot analysis). In the image, dark gray areas are primarily ilmenite and light gray areas primarily hematite. Gangue material is not shown.

Figure 1: Microscopic picture of HSP ore (50X)

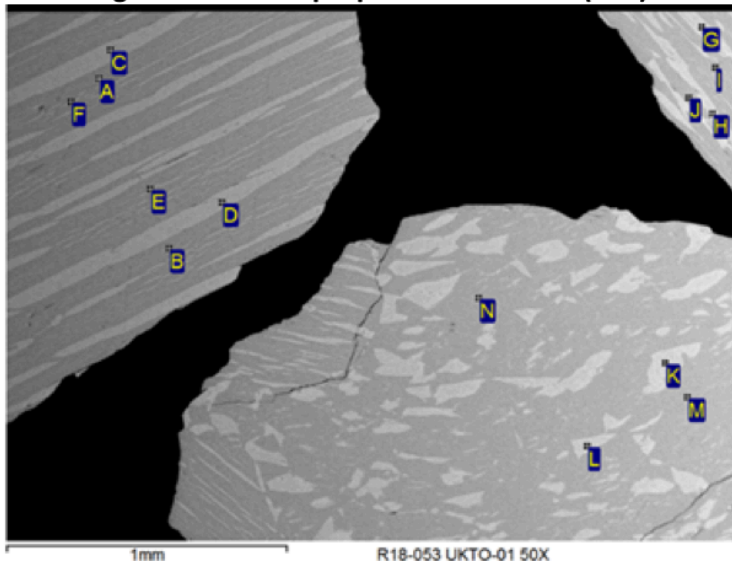


Table 1: chemical analysis by points (ref. Figure 1) (% by mass)

Spectrum	MgO(%)	Al ₂ O ₃ (%)	TiO ₂ (%)	V ₂ O ₅ (%)	Cr ₂ O ₃ (%)	Fe ₂ O ₃ (%)
A	3.98	0	47.61	0.63	0	47.78
B	3.93	0	48.8	0.31	0	46.95
C	2.45	0	26.38	0.86	0.31	70
D	1.16	0	16.04	0.93	0.26	81.62
E	4.25	0	47.67	0.32	0	47.6
F	2.34	0	26.76	0.79	0	70.11
G	0.89	0.38	14.53	1.06	0.36	82.78
H	0.97	0.26	16.26	0.98	0.38	81.15
I	4.12	0	50.59	0.41	0	44.68
J	3.65	0	50.06	0.51	0	45.61
K	0.56	0.39	15.89	1.03	0.63	81.17
L	1.16	0.49	18.26	1.04	0.66	78.39
M	3.82	0	49.87	0.37	0	45.94
N	3.92	0.2	49.07	0.45	0	46.13

Area Analysis

In Fig. 2 and supporting Table 2, similar chemical analysis is presented for the areas shown in this figure (area analysis). In the image, dark gray areas are primarily ilmenite and light gray areas primarily hematite. Gangue material is not shown.

Figure 2: Microscopic picture of HSP ore (250X)

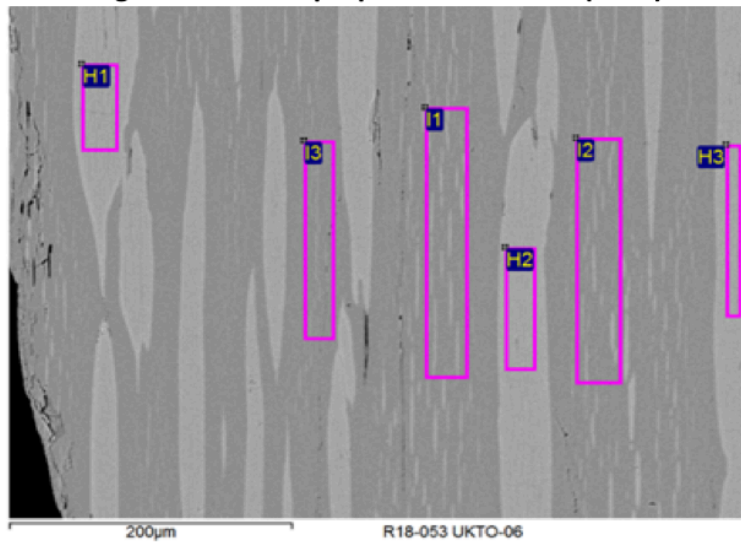


Table 2: chemical analysis by area (ref. Figure 2) (% by mass)

Spectrum	MgO(%)	Al2O3(%)	TiO2(%)	V2O5(%)	Cr2O3(%)	Fe2O3(%)
H1	1.25	0.41	17.93	0.8	0.19	79.18
H2	1.12	0.38	17.77	0.85	0.17	79.5
H3	1.07	0.38	17.74	0.9	0.15	79.43
I1	3.94	0.13	46.06	0.5	0	49.12
I2	3.98	0.11	46.6	0.47	0	48.6
I3	4	0.12	48.01	0.4	0	47.01