

O T T A W A

September 22nd, 1942.

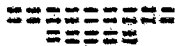
R E P O R T

of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 1305. C. 1

Magnetic Concentration of
Vanadium-bearing Titaniferous Magnetite
from Mattawa, Ontario.



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Shipment:

Two small samples of ore, described as vanadium-bearing titaniferous magnetite and designated Sample No. 6951 and Sample No. 6953 (weights, $5\frac{1}{2}$ and 7 pounds respectively), were received for investigation from T. L. Tanton, of the Geological Survey, Mines and Geology Branch, Department of Mines and Resources, Ottawa, on September 3rd, 1942. These samples had been submitted to the Geological Survey by W. E. Aitchison, Consolidated Mining and Smelting Co. Ltd., North Bay, Ontario.

Location of the Property:

The samples were taken from two trenches 75 feet apart on a property in Papineau township, 3 miles south of Mattawa, Ontario.

Purpose of the Investigation:

The investigation was made to determine what concentration of vanadium could be obtained from the ore by magnetic concentration.

Sampling and Analysis:

Each sample was crushed and representative portions were assayed and found to contain:

| | <u>V₂O₅,</u> per cent | <u>TiO₂,</u> per cent | <u>Fe,</u> per cent |
|-------------------|--|-------------------------------------|------------------------|
| Sample No. 6951 - | 1.14 | 15.2 | 46.12 |
| Sample No. 6953 - | 1.23 | 15.4 | 49.82 |

Investigative Procedure:

Each sample was crushed to pass a 60-mesh screen and then was concentrated magnetically on a Wetherill belt-type dry separator.

The concentration was made using the minimum magnetic field of the machine, approximately 2 amperes.

Results of Test Work:

46.4 per cent of Sample No. 6951 was recovered as a magnetic concentrate which assayed 1.76 per cent V₂O₅, 4.5 per cent TiO₂, and 63.5 per cent Fe, with recoveries of 72.8 per cent, 13.7 per cent, and 63.2 per cent respectively. The ratio of concentration was 2.2:1.

Details of the Tests:

The minus 60 mesh ore was fed to the magnetic separator. The magnetic concentrates and non-magnetic tailings were assayed.

(Details of the Tests, cont'd) -

Results:

Magnetic Concentration of Sample No. 6951.

| Products | Weight, per cent | Assays, per cent | | | Distribution, per cent | | | Ratio of concent- ration |
|----------------------|---------------------|-------------------------------|------------------|-------|-------------------------------|------------------|-------|--------------------------------|
| | | V ₂ O ₅ | TiO ₂ | Fe | V ₂ O ₅ | TiO ₂ | Fe | |
| Feed | 100.0 | 1.12 | 15.3 | 46.70 | 100.0 | 100.0 | 100.0 | |
| Magnetic concentrate | 46.4 | 1.76 | 4.5 | 63.58 | 72.8 | 13.7 | 63.2 | 2.15:1 |
| Non-mag. tailing | 53.6 | 0.57 | 24.6 | 32.07 | 27.2 | 86.3 | 36.8 | |

Magnetic Concentration of Sample No. 6953.

| | | | | | | | | |
|----------------------|-------|------|------|-------|-------|-------|-------|--------|
| Feed | 100.0 | 1.32 | 15.2 | 48.40 | 100.0 | 100.0 | 100.0 | |
| Magnetic concentrate | 55.9 | 1.76 | 7.0 | 61.88 | 74.1 | 25.8 | 71.5 | 1.79:1 |
| Non-mag. tailing | 44.1 | 0.78 | 25.5 | 31.32 | 25.9 | 74.2 | 28.5 | |

The results indicate the grades and recoveries of concentrates that should be obtained from ores similar to those submitted in the shipment.

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