

O T T A W A

August 1st, 1940.

R E P O R T

of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 875.

Magnetic Separator Rejects from the Wood Cadillac
Mines Limited, Kewagama, Quebec.

BUREAU OF MINES
DIVISION OF METALLIC MINERALS
—
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CANADA
DEPARTMENT
OF
MINES AND RESOURCES
MINES AND GEOLOGY BRANCH

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Shipment:

A small sample of finely divided material,
weight approximately $1\frac{1}{2}$ pounds, was received from the
Wood Cadillac Mines Limited, Kewagama, Quebec, on
July 21st, 1940. This material was said to be magnetic

rejects from the magnetic separator at the Wood Cadillac mill.

The sample was forwarded to ascertain if this material has any economic value as an iron ore.

Details of Investigation:

The sample was analysed and was found to contain:

| | | |
|--------------|---|----------------|
| Iron (Fe) | - | 32.15 per cent |
| Silica (SiO) | - | 43.10 " |
| Sulphur (S) | - | 0.32 " |

Former investigations made on Wood Cadillac ore showed that a considerable amount of magnetite was present. Microscopic examination of this present sample showed it to consist of grains of gangue and grains of magnetite with fine gangue clinging to them.

A sample of the material was passed through a Dings wet magnetic separator and a magnetic product was recovered. This was again passed through the separator. Microscopic examination of this final concentrate showed it to consist of a mixture of free grains of magnetite and particles of quartz with attached magnetite particles.

Results:

| Product | Weight, per cent | A s s a y s , per cent | | | | Distribution of iron, per cent |
|-------------|------------------|------------------------|------------------|------|------|--------------------------------|
| | | Fe | SiO ₂ | P | S | |
| Feed | 100.0 | 32.15 | 43.1 | - | 0.32 | 100.0 |
| Concentrate | 51.3 | 58.60 | 15.6 | 0.09 | 0.15 | 88.6 |
| Tailing | 48.7 | 7.96 | 64.6 | 0.28 | 0.60 | 11.4 |

(Continued on next page)

A second sample was ground minus 100 mesh and magnetically concentrated. The concentrate obtained was re-passed three times and then tested by heavy solutions. No further elimination of silica was obtained by this last concentration. Microscopic examination showed the presence of a quartz-magnetite middling product. Twenty-seven per cent of the weight of feed was recovered as a concentrate containing 62.4 per cent iron and 11.2 per cent silica.

Conclusions:

51.3 per cent of the weight of the material submitted was recovered as a magnetic concentrate containing 58.6 per cent iron, 15.6 per cent silica, 0.09 per cent phosphorus, and 0.15 per cent sulphur.

This material, consisting of clean magnetite and quartz-magnetite middling, has a silica content of 15.6 per cent. As the concentrate will require sintering, this silica content is much too high for a successful operation.

It obviously is not economic to regrind the product. The silica content of the concentrate obtained for a minus 100 mesh grind is high, 11.2 per cent SiO_2 .

This high silica content and the trouble that will occur during sintering make this problem non-economic.

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