

MAR 19510001: COLEMAN

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DEPARTMENT OF MINES AND TECHNICAL SURVEYS

MINES BRANCH

CANADA

ECONOMIC MINERALS

FILE REPORT No.

FE-AF-005(06)

FE-AF-007(06)

FE-AF-008(05)

FE-AF-009(05)

A-6

Ottawa, March 3, 1951.

R E P O R T

of the

MINERAL DRESSING AND PROCESS METALLURGY DIVISION.

M.D. Test Report No. 507-0D.

Microscopic Examination and Magnetic Concentration
of a Sample of Magnetic Iron Ore from the
International Coal and Coke Company, Coleman, Alberta.

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Note:

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pyrite)*

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Mines Branch

CANADA

Division of
Mineral Dressing
and
Process Metallurgy

DEPARTMENT
OF
MINES AND TECHNICAL SURVEYS

O T T A W A

March 3, 1951.

R E P O R T

of the

MINERAL DRESSING AND PROCESS METALLURGY DIVISION.

M.D. Test Report No. 507-OD.

Microscopic Examination and Magnetic Concentration
of a Sample of Magnetic Iron Ore from the
International Coal and Coke Company, Coleman, Alberta.

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Shipment:

The shipment consisted of one large piece of rock,
weight 10 pounds. It was submitted on November 21, 1950, for
investigation, by Mr. W. M. Goodwin, Mineral Resources Division,
Mines Branch, Ottawa, for Mr. J. J. McIntyre, International
Coal and Coke Company, Coleman, Alberta.

Purpose of the Investigation:

The sample was submitted for a microscopic examination of polished sections, chemical analysis of the sample, and magnetic concentration.

Chemical Analysis:

| | | | |
|------------------|---|-------|----------|
| Iron | - | 35.22 | per cent |
| Sulphur | - | 0.078 | " |
| Phosphorus | - | 0.126 | " |
| Insoluble | - | 25.42 | " |
| SiO ₂ | - | 19.34 | " |
| Ti? | | | |

Microscopic Examination:

Six polished sections were prepared from the sample and were examined microscopically to determine the characteristics of the ore.

Gangue -

In the polished sections, the gangue material is a fine-grained, dark grey admixture of quartz and carbonate.

Metallic Minerals -

A megascopic inspection of the six polished surfaces shows them to be rather sparsely mineralized. Under the microscope, however, metallic minerals are seen to be more abundant than they appear to the unaided eye. In some fields of the microscope they predominate over gangue but in other fields they are quite subordinate to it and, on the whole, they are, perhaps, not more than equal to gangue in total amount by volume.

Magnetite preponderates greatly and is disseminated through gangue as irregular grains which range from about 150 microns

(100 mesh is 147 microns) down to the limits of the microscope (1 micron or less in diameter), with the finer sizes predominant. A comparatively small quantity of hematite is present as occasional scattered grains which average approximately 60 microns (-200+280 mesh) in size. Pyrite is also visible in very small amount as rare tiny particles in gangue.

Magnetic Concentration:

This test was made by means of the Davis Magnetic Tube. The results of this test indicated a recovery of 40 per cent, by weight, as a magnetic concentrate, at a grind of minus 100 mesh. The concentrate assayed Fe, 59.06 per cent; SiO₂, 5.02 per cent; TiO₂, 4.14 per cent.

Conclusions:

The shipment was submitted for an analysis of the ore and for a microscopic examination of polished sections made from the ore.

No conclusions can be drawn in the absence of a representative sample of the deposit on which tests can be made to note the recovery and grade of concentrate. One preliminary concentration test by means of the Davis Tube indicated a recovery of 40 per cent of the weight of the feed as a magnetic concentrate when the feed was ground to minus 100 mesh.

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W. S. Jenkins,
Mineral Dressing Section.

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