



DEPARTMENT OF MINES  
CANADA

MINES BRANCH

O T T A W A    March 3rd, 1930.

R E P O R T

of the

ORE DRESSING AND METALLURGICAL LABORATORIES

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The Testing of Gypsum From the Magdalen Islands.

By R. A. Rogers.

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Report No. *349*

The Testing of Gypsum from the Magdalen Islands.

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Shipments: Three samples of crude gypsum rock were received from L.H. Cole, Mines Branch, Ottawa, on July 10, 1929. These were from Amherst, Grindstone, and Alright islands of the Magdalen islands.

The samples were taken from <sup>the</sup> following localities:-

Amherst island - from deposit one-half mile from government landing wharf. This outcrop is 25 feet high by 150 yards long and extends inshore for some distance.

Grindstone island - from deposit two miles from government wharf. At this locality, there were no outcrops on the surface, but sample was taken from under 5 feet of overburden and seems quite extensive.



Alright island - from deposit three-quarters of a mile from government wharf. This outcrop on the shore where sample was taken is about 100 feet high and is exposed for 60 yards. The deposit appears to run inland for about three miles and can be traced by outcrops and sinkholes for that distance.

Purpose of Tests: The purpose of the tests was to determine the suitability of the gypsums for making plaster, and to obtain comparative data.

Sampling and Analysis: The samples as received were in lumps averaging about 5 inches in diameter.

The Amherst island gypsum was faint pink in colour, and had a fibrous, banded texture.

The Grindstone island rock was also faint pink in colour, but had a fibrous texture with thin lenses of reddish clay.

The Alright island rock was mottled grey-white in colour, and had a massive texture.

As in previous tests, the samples were first washed to remove clay and sand, and then dried at a low temperature. They were then crushed in a Sturtevant Swing-Sledge mill, and finally ground in a Munson buhr mill to 95% through 100 mesh.

The products from the buhr mill were sampled with a Jones riffle sampler, and the samples chemically analysed by the writer. The results of the analyses follow:-

	: Amherst	: Grindstone:	: Alright
Insoluble	: 0.68	: 1.06	: 0.48
Ferric oxide Fe <sub>2</sub> O <sub>3</sub>	: 0.10	: 0.07	: 0.11
Alumina Al <sub>2</sub> O <sub>3</sub>	: 0.08	: 0.13	: 0.11
Lime CaO	: 32.51	: 32.51	: 33.09
Magnesia MgO	: 0.04	: 0.04	: 0.17
Sulphur trioxide SO <sub>3</sub>	: 46.31	: 46.94	: 46.40
Water H <sub>2</sub> O	: 20.07	: 19.43	: 18.19
Carbon dioxide CO <sub>2</sub>	: <u>0.10</u>	: <u>0.04</u>	: <u>0.65</u>
	: 99.89	: 100.22	: 99.20



Experimental Tests: Fifty pound lots of each sample were calcined in a small electric batch kettle to the first settle. Then this calcined gypsum was tested. The water remaining after calcination, the testing consistency, and the time of setting were determined. Briquettes and cylinders were made, dried in the air to constant weight, and broken in Riehle' and Olsen testing machines. This gave the tensile and compressive strengths.

Summary of tests.

	: Amherst	: Grindstone	: Alright
<u>Water after calcination.</u>	:	:	:
Water before calcination.	: .283	: .302	: .328
Final temperature of calcination °F.	: 298	: 310	: 290
Water after calcination %.	: 5.68	: 5.88	: 5.98
Testing consistency - cc. per 100 gms.	: 69	: 70	: 74
Time of setting in minutes.	: 13	: 17	: 14
Tensile strength - lb. sq.in.	: 343	: 383	: 253
Compressive strength - lb. sq.in.	: 1647	: 1563	: 1149
Colour of calcined product after set	: very faint pink	: very faint pink	: white

Conclusions: The testssshow that these gypsums are suitable for the manufacture of structural materials having a gypsum base. The Amherst and Grindstone deposits do not make white plasters, so would not be satisfactory where a white finishing plaster is required.