

*File*

# FILE COPY

O T T A W A

September 10, 1946.

## R E P O R T

of the

### ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 2106.

Screen Analysis of Barite Ore from Walton, Nova Scotia.

=====

Note:

This report relates essentially to the samples as received. It shall not, nor any correspondence connected therewith, be used in part or in full as publicity or advertising matter for the sale of shares in any promotion.

(Copy No. 12.)

BUREAU OF MINES  
DIVISION OF METALLIC MINERALS  
—  
ORE DRESSING AND  
METALLURGICAL LABORATORIES



CANADA  
DEPARTMENT  
OF  
MINES AND RESOURCES  
MINES AND GEOLOGY BRANCH

O T T A W A

September 10, 1946.

R E P O R T

of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 2106.

Screen Analysis of Barite Ore from Walton, Nova Scotia.

=====

Shipment:

A shipment containing three samples of barite, gross weight 70 pounds, was received at the Laboratories on August 8, 1946. This shipment, taken from the mine of Canadian Industrial Minerals Limited at Walton, Nova Scotia, was submitted by R. P. Opie, General Manager of the company, Toronto, through H. S. Spence, Senior Engineer, Industrial Minerals Section, Division of Mineral Resources, Bureau of Mines, Ottawa.

Purpose of the Investigation:

The three samples were representative of ore containing impurities of silica alumina and iron oxide.

In a covering letter Mr. Opie stated that some of the ore remains high in barium sulphate but runs over the guaranteed specifications in regard to iron oxide, alumina and silica. He wished the investigation to determine whether these impurities would be freed by crushing, and, if so, at what sizes they could be eliminated, or whether the material was present as an intercrystalline structure. It is also desirable to keep the finished products as coarse as possible.

The specifications which the company wishes to meet are the following:

CRUDE BARYTES

BaSO <sub>4</sub> content,	95% minimum	
Fe <sub>2</sub> O <sub>3</sub>	"	, 1.5% maximum
SiO <sub>2</sub>	"	, 2.0% "
Al <sub>2</sub> O <sub>3</sub>	"	, 0.5% "
CaO	"	, 0.75% "
SrSO <sub>4</sub>	"	, 2.25% "
Moisture	"	, 2.0% "

Examination of hand specimens of the three samples was made. The structure appears to be rather fine-grained and from the appearance of the various crystals it was concluded that they would be separated only at relatively fine sizes.

Results of Experimental Tests:

The results of the tests show that there is no separation of impurities great enough in any of the screened products to give the desired specifications.

The expectation that a simple crushing and screening operation would effect such a separation is not justified by the results obtained herein.

Investigative Procedure:

Each of the samples was crushed to pass a 1" screen. The sample was then screened on  $\frac{3}{4}$ ",  $\frac{1}{2}$ ",  $\frac{1}{4}$ ", and 6-, 8- and 10-mesh screens. One-half of each screen product was cut out and prepared for analysis by crushing to pass 100 mesh. The balance of each screen product was held for reference.

The products from Sample No. 1 were analysed for  $Al_2O_3$ ,  $SiO_2$ ; Sample No. 2, for  $CaO$ ,  $SiO_2$ ; and Sample No. 3 for  $Fe_2O_3$ ,  $SiO_2$ .

SCREEN SIZE	SAMPLE NO. 1			SAMPLE NO. 2			SAMPLE NO. 3		
	Weight,	Analysis,	: $Al_2O_3:SiO_2$ :	Weight,	Analysis,	: $CaO : SiO_2$ :	Weight,	Analysis,	: $Fe_2O_3:SiO_2$ :
	per	per cent		per	per cent		per	per cent	
Maximum allowed	-	0.5	2.0	-	0.75	2.0	-	1.5	2.0
-1" + $\frac{3}{4}$ "	7.5	0.95	2.98	7.0	0.16	2.44	6.0	1.66	2.16
- $\frac{3}{4}$ " + $\frac{1}{2}$ "	30.5	1.02	2.92	26.1	0.46	2.96	27.8	1.92	3.10
- $\frac{1}{2}$ " + $\frac{1}{4}$ "	31.1	0.84	2.80	31.6	0.62	3.76	34.8	2.39	3.80
- $\frac{1}{4}$ " + 6 mesh	12.5	0.86	2.78	13.0	0.44	4.24	13.1	2.49	3.42
-6 + 8 mesh	4.7	0.85	2.52	5.5	0.66	3.24	4.4	2.89	1.78
-8 + 10 mesh	1.9	0.66	2.36	2.5	0.60	5.28	2.2	3.07	2.58
-10 mesh	11.8	1.01	2.94	14.3	0.62	6.56	11.7	3.65	1.74
Total	100.0	0.92	2.95	100.0	0.52	3.93	100.0	2.41	3.14

oooooooooooo  
oooo  
oo

BSJ:MC.

