

Report No. 284

The Flotation of Graphite Tailings from Dominion
Mine, Buckingham, Quebec

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Shipment: One hundred bags of graphite tailing, shipping weight 10,000 lbs. were received July 18th 1927, from the Dominion Mine, Buckingham, Que.

Purpose of Tests: It was desired to determine from the shipment the graphite content of the tailing, and whether it could be commercially recovered.

Characteristics and Analysis: The tailing came from the dump of the Dominion mine and consisted of fine ground material containing graphite in flakes some of the flakes being fairly large. A small portion of the tailing was taken from each bag and mixed to form a grab sample on which to conduct some small scale tests. This grab sample assayed 3.30% C

Experimental Tests: Four small scale flotation tests were made on the grab sample to indicate the most likely lines of treatment. In all these tests only a small proportion of No. 1 flake was recovered, and in all tests this flake assayed very low in carbon, the highest assay being 67% and the others 59, 53, and 40%

Two large scale flotation tests were then made. These were numbered 5 and 6, and the following are the results:

<u>Test No. 5:</u>	Tailing used in test 3135 lbs.	assaying	3.29% C
	Concentrates +80 mesh		54.52% C
	Concentrates -80 mesh		21.55% C
<u>Test No. 6:</u>	Tailing used in test 3047 lbs.	assaying	2.29% C
	Concentrate +80 mesh		61.89% C
	Concentrate -80 mesh		25.41% C

These large scale tests show that the grade of concentrate produced is too low to be commercial. The tailings are also too low in graphite content to be of commercial value.

A small scale tests was made and the products screened on 28 mesh Flake picked from the screened products assayed as follows:

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Flake from concentrate	49.35 %	Carbon
Flake from middling	26.50 %	"
Flake from tailing	55.31 %	"

This shows that some foreign substance is present in what appears to be flake, and accounts for the low grade of concentrates produced.

In order to obtain the graphite content of the entire shipment, the tailings not used in the above tests were weighed and sampled:

Weight	3782 pounds	Assay	2.14% Carbon
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Conclusions:

1. The tailings submitted are too low in graphite content to be of commercial value. The shipment contained only 2.55% carbon
2. The flake present in the tailings is very impure, and because of this it is impossible to produce a high grade concentrate.