

All one lists

ALL OFFICIAL CORRESPONDENCE
SHOULD BE ADDRESSED TO THE DIRECTOR.

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OTTAWA, December 17th, 1917.

Test No. 68

A 50 pound sample of Molybdenite Ore was received on November 26th, 1917 from Robert Gamble, Kakabeka Falls, Ontario.

This sample gave the following analysis:-

- Molybdenite (MoS₂) - 2.46 %
- Copper (Cu) - none
- Bismuth (Bi) - none
- Arsenic (As) - none

The ore was of the amorphous variety, filling the fractures in the quartz. A small amount of pyrite is present.

Tests were conducted on the small Callow Testing Machine on 1000 gram lots.

Run No. 1:

Ore crushed to 50 mesh

Oil used, - 1½ lbs. Coal oil per ton

½ lb. # 75 Crude turpentine per ton.

Concentrates Weight - 33 grams

Analysis - 60.97 % MoS₂

Content - 20.12 grams MoS₂

Recovery - 67.60 %

Middlings Weight - 38 grams

Analysis - 9.17 % MoS₂

Content - 3.48 grams MoS₂

% age of MoS₂ in crude - 11.6 %

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Tailings Weight - 929 grams
 Analysis - 0.675 % MoS₂
 Content - 6.27 grams MoS₂
 Loss - 20.8 %

Figuring on recovery of 70 % of values in Middlings
 the recovery of MoS₂ values in the crude would be 75.7 %.

Run No. 2:

Ore crushed to 80 mesh

Oil used - 3 lbs. Coal oil per ton

1 lb. # 75 Crude turpentine per ton

Concentrates Weight - 41 grams
 Analysis - 52.44 % MoS₂
 Content - 21.50 grams MoS₂
 Recovery - 73.1 %

Middlings Weight - 40 grams
 Analysis - 10.19 % MoS₂
 Content - 4.07 grams MoS₂

% age MoS₂ in Crude- 13.8 %

Tailings Weight - 919 grams
 Analysis - 0.42 % MoS₂
 Content - 3.86 grams MoS₂
 Loss - 13.1 %

Figuring on Recovery 70 % of values in the Middlings
 the recovery of MoS₂ values in the crude would be 82.8 %.

Run No. 3:

Ore crushed to 80 mesh

Oil used - 3 lbs. Coal oil per ton

1 lb. # 5 Pine oil per ton.

Concentrates Weight - 40 grams
 Analysis - 58.87 % MoS₂

Content

Content - 23.55 grams MoS₂
Recovery - 76.59 %

Middlings

Weight - 97 grams
Analysis - 4.93 % MoS₂
Content - 4.78 grams MoS₂

% age MoS₂ of Crude - 15.54 %

Tailings

Weight - 863 grams
Analysis - 0.28 % MoS₂
Content - 2.42 grams MoS₂
Loss - 7.87 %

Figuring on a recovery of 70 % of values in Middlings the recovery of MoS₂ values in the Crude would be 87.46 %.

Conclusions

The ore will have to be ground to at least 80 mesh and possibly a little finer would give better results.

The Tailings on the last two runs are fairly low considering the high grade of the milling ore. On an ore around 1 % MoS₂ the tailings would be proportionately lower.

It has been found also that better results are obtained in practice on the large machines.

The concentrates are below marketable quality but in practice these are screened to take out the fine iron and slime which is returned to the circuit and the grade of the concentrate in this way increased to marketable quality.

Although this ore is not as easily and as readily concentrated as some of the fine flake varieties there is no doubt that an 85 % to 90 % recovery can be made by the Flotation Process and a marketable concentrate produced quite readily.