

E. M. D. W.

O T T A W A April 3rd, 1943.


R E P O R T
of the
ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 1381.

The Use of Dresinate 7N24 as a Reagent
in the Flotation of Scheelite.

(Copy No. 8.)

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


CANADA
DEPARTMENT
OF
MINES AND RESOURCES
MINES AND GEOLOGY BRANCH

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Shipment:

A sample of Dresinate 7N24, weighing approximately 2 pounds, was received in November, 1942. This sample, marked Sample No. X2655-98-5, was sent to these Laboratories by the Canadian Industries Limited, P.O. Box 10, Montreal, Quebec, per Mr. L. Hynes, Assistant Sales Manager, Organic Chemicals Division.

Purpose of Experimental Tests:

The tests using Dresinate 7N24 were designed to test this product as a flotation reagent for scheelite. This was accomplished by the suitable substitution of this Dresinate for Emulsol X-1 and Orso, the standard scheelite flotation reagents.

Characteristics of the Reagent:

Dresinate 7N24 is a liquid containing 70 per cent solids, the diluent being water. According to the manufacturers, it is a stronger frother than fatty acid soap and has been successfully used to float sodium chloride, giving a high-grade potassium chloride tailing, and to remove calcium chloride from a cement rock by flotation.

Results of Experimental Tests:

Dresinate 7N24, because of its greater frothing power, gave a large, low-grade scheelite concentrate. This was found to be the case even with a small amount of the reagent (0.02 pound per ton), but the less Dresinate used the lower the grade of the concentrate. An activator, lead nitrate, did not increase the grade of the concentrate obtained when Dresinate was used as a scheelite flotation reagent. This reagent would not appear to be suitable for the flotation of scheelite.

Details of Tests:

Test No. D5.

1,000 grams of minus 14 mesh scheelite ore was ground in a jar mill, approximately 60 per cent solids, for 30 minutes. The product was 82 per cent through 200 mesh. pH of solution was 8.2.

The following reagents were added to the grinding mill:

	<u>Lb./ton</u>
Soda ash	1.0
Sodium silicate	1.0

The following reagents were added to the flotation cell:

	<u>Lb./ton</u>
Dresinate 7N24	0.2
Orso	0.3

(Test No. D5, cont'd) -

Results:

Product	Weight, per cent	WO ₃ assay, per cent	Distribution of WO ₃ , per cent
Feed	100.0	0.43	100.0
Flotation concentrate	11.8	2.90	79.7
Flotation tailing	88.2	0.10	20.3

SUMMARY AND CONCLUSIONS:

All tests made with this reagent were similar to that detailed above except for kinds and quantities of reagents added to the flotation cell.

Dresinate 7NS4, as the collector, with cresylic acid as a froth stiffener and lead nitrate as an activator, gave a small, exceptionally low-grade scheelite concentrate.

This reagent would appear to be too powerful a frother for scheelite flotation. Less than 0.2 pound per ton gave as large a concentrate as shown above but one having an even lower grade. Flotation of the same ore using Emulsol X-1 and Orso will give a concentrate assaying 8 per cent WO₃. Dresinate 7NS4 would not appear to be a suitable flotation reagent for scheelite ores.

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