O T T A W A November 20th, 1942.

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of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 1327.

Interim Report of Concentration Tests on a Chromite Ore from the Page Claims, Bird River, Manitoba.

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Status:

The preliminary concentration tests on the 1,180-pound shipment of chromite ore received on August 31st, 1942, have now been concluded. The head sample assayed:

Cr_2O_3 - 26.80 per cent.
Fe - 12.34 "

Concentration tests by the Wilfley table, Denver flotation cell and the Haultain superpanner, and magnetic concentration tests in the Davis tube, constituted the ore dressing work done on the shipment.

Summary of Preliminary Concentration Results:

By table concentration, after grinding through a set of rolls, concentrates assaying 42.4 per cent Cr_2O_3 and 19.6 per cent Fe were obtained at a grind of 100 per cent

(Summary of Preliminary Concentration Results, cont'd) -

minus 48 mesh. The recovery was 66.0 per cent of the Cr_2O_3 and the chrome-iron ratio was 1.48:1. At a grind of 100 per cent minus 10 mesh, concentrates assaying 33.5 per cent Cr_2O_3 and 16.66 per cent Fe were obtained, with a recovery of 85.1 per cent. The chrome-iron ratio of this concentrate was 1.38:1.

Flotation of the chrome in the ore was attempted but was not found to be feasible, owing to the pronounced tendency of the serpentine talc in the gangue to float along with the chromite mineral. Better results were secured by first removing the talc by flotation, followed by gravity concentration of the flotation tailing. By this method the grade of table feed was raised from 26.80 per cent Cr_2O_3 (head assay) to 31.4 per cent Cr_2O_3, with a removal of 18 per cent of the weight of the pulp at a loss of only 5.0 per cent of the Cr_2O_3.

Table concentration of these flotation tailings gave a concentrate assaying 40.6 per cent Cr_2O_3, with an overall recovery of 78.9 per cent of the chromite. The initial grind was 100 per cent minus 35 mesh.

By desliming, prior to table concentration, the grade of table feed was raised to 29.1 per cent Cr_2O_3 and with a decantation of 6.5 per cent of the weight of the feed. The ensuing table concentrate assayed 40.3 per cent Cr_2O_3 with an overall recovery of 77.6 per cent of the chromite. The grind was 100 per cent minus 35 mesh.

Superpanning tests on different table concentrates raised the grade less than 1.0 per cent Cr_2O_3 and did not alter the chrome-iron ratio appreciably. Magnetic concentration, in the Davis tube, of two lots of table concentrates gave results which showed less than 1.0 per cent of the

(Summary of Preliminary Concentration Results, cont'd) -

concentrate to be magnetic.

The microscopic examination of the polished sections shows that the average size of the chromite grains is about 160 microns (minus 65 plus 100 mesh) and that these grains contain numerous small inclusions of gangue material, the majority of which are too small to be economically eliminated by grinding. The polished sections also revealed that if magnetite is present it is in very small amount.

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