

DNIPRO UNIVERSITY of TECHNOLOGY 1899

TECHNOLOGY OF COMPLEX ENRICHMENT

OF GRAPHITE RAW MATERIALS

DEVELOPERS: ass. prof. Dreshpak O.S., ass. Prof. Dreshpak N.S., ass. Prof. Berezniak O.O., res. Chechel P.O., res. Berezniak O.O., res. Shutov V.Yu.

FLOTATION PLANT FML-240L



ESSENCE

The scope of the design of the graphite beneficiation process includes the results of ongoing process testing of similar enterprises to obtain relevant process data required to select and confirm equipment performance and process flow-sheet performance for graphite extraction, determination of concentrate grades and graphite flake size.

TECHNOLOGICAL SUPPORT

The tests will be performed after chemical and petrographic testing of the raw materials (performed at the Center for Processing and Enrichment of Mineral and Man-made Raw Materials of NTU Dnipro University of Technology). The process flow chart below is based on the results of laboratory tests. The process flow chart will include:

- jaw crushing;
- crushing in a VSI centrifugal crusher;
- SAG mill;
- wet forced sieving;
- wet forced self-scrubbing;
- double classification in hydrocyclones of different diameters;
- basic froth flotation in a Jameson Cell flotation

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machine;

- froth flotation in the Jameson Cell flotation machine
- grinding of rough concentrate in a tumbling mill (modernized ball mill with ceramic cylinders);
- concentrate purification by chemical methods (sulfuric acid treatment);
- concentrate dehydration;
- drying and packaging.

The result of the tests will be the calculation of a technological (machine) and water-sludge scheme for the enrichment of graphite-containing raw materials with additional extraction of co-products (sand, clay, etc.).

END PRODUCTS

technological During the process development, working flow chart (designed for a ball mill capacity of 10 t/h) is developed, which means a production 80,000 t/h of graphite of rate and concentrate, the extraction above 90% and obtaining the end grade of grafite concentrate with the content of above 90% are meintained.

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LABORATORY CAPABILITIES

- Flotation methods of enrichment and dewatering.
- Gravity methods of enrichment.
- Magnetic and electrical enrichment methods.

INFORMATION FOR INVESTOR

The cost of laboratory research (feasibility study) is 10.0-15.0 thousand EUR. The test period (depending on the number of samples) is from 2 months. The term for issuing a technological and water-sludge scheme is 2 months. The term for designing a working line is 3-6 months.

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