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ESTIMATION OF POSSIBILITY OF THE USE OF TITANIC RAW MATERIAL OF ФЕДОРОВСКОГО OF DEPOSIT OF UKRAINE FOR RECEIPT OF PIGMENTAL TITANIA

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The opportunity of use Ukrainian ilmenite concentrate Fedorovsky deposit for production of titanium dioxide pigments is studied. Laboratory researches for reactivity of a concentrate were spent by a method of calorimetric measurements in comparison with Norwegian ilmenite concentrate most often used in sulphate technology TiO_2 pigments. It is shown, that Fedorovsky ilmenite concentrate can be used as raw material by production of titanium dioxide pigments at minor alterations of decomposition technology in comparison with Norwegian ilmenite concentrate.

Keywords: ilmenite concentrate, pigments dioxide of titanium, decomposition, extraction in a solution of sulfuric acid

In Ukraine two major plants work on the production of pigmented titanium dioxide by a sulfate method PAJ «Crimean titan» and «Sumychimprom». Total power of both plants makes ~160 thousands t. of pigmented titanium dioxide.

Basic raw material for the sulfate method of production of pigmented titanium dioxide the invariant ilmenite concentrates serve with maintenance 46-52 % TiO_2 and correlation in it FeO:Fe_2O_3 = 1,9-2,2. Especially hard requirements to the ilmenite concentrates are produced on content the admixtures of chrome, phosphorus, manganese and vanadium (0.001; 0.0015; 0.025 and 0.004 accordingly in a count on relation of content of corresponding oxide to content of TiO_2 in initial raw material). However the reserves of such ores are limited.

A task of this work is research of possibility of application of ilmenite concentrate (test No 1), got from Fedorovsky of apatite-ilmenite deposit of Ukraine for the production of pigmented titanium dioxide. As a standard for comparison used the standard Norwegian ильменитовый concentrate (test No 2) which is most often used in sulfate technology by the productions of pigmented titanium dioxide.

Researches of reactionary ability for tests of ilmenite concentrate carried out the method of the quasi-adiabatic calorimetry measuring and determination of thermo kinetics of dissolution of ilmenite concentrate in sulphuric acid.

Extraction of TiO_2 in solution there is determined, as relation of mass of titan dioxide dissolved in sulphuric acid of to mass of TiO_2 in the investigated test of ilmenite concentrate, and also on the basis of analysis of initial ilmenite concentrate, analysis of solution and analysis of undissolved residuum.

Upon termination of decomposition reaction solution was diluted by water and it was analyzed. Hard sodium was filtered, several times washed by water and dried out. On results an analysis there are determined the quantity of dissolved titania and calculated extraction of TiO_2.

It is set that decomposition reaction for tests No 1 and test No 2 flows in analogical terms. A difference consists that f or a test No 1 decomposition reaction begins a bit before, than for test No 2 and duration of the so-called main reaction any-

more. The maximal temperature for reaction of decomposition in these terms consists 194 °C and extraction of TiO_2 in solution here consists 92.6 %. For comparison extraction of TiO_2 for a test No 2 consists 2.88 % in the same terms

On the basis of foregoing it is possible to draw conclusion, that test No 1 (ilmenite concentrate for Fedorovsky deposit) has subzero reactionary ability slightly more, what test № 2 (Norwegian concentrate) and the process of decomposition it must carry out in more concentrated sulphuric acid and have more high temperature for initiation of reaction.