DETERMINATION OF LEACHING PARAMETER VALUES BY UNDERGROUND MINING METHODS FROM POOR AND EXTREMELY POOR ORES USING SIMILARITY THEOREM

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Purpose. Determination of technological parameters of leaching processes of poor and extremely poor uranium ores by similarity theorems.

Methodology. To achieve the purpose, the model based on the similarity theorem is developed to determine the values of the parameters of processes occurring in the rock ore during leaching.

Findings. The use of similarity theorems for simulation of the technological process of extraction of minerals is considered. The list of parameters that significantly influence the process of underground leaching of minerals is defined. Using these parameters and fundamental physical and chemical laws, mathematical functions that describe the processes behavior under these conditions are determined. The obtained mathematical functions make it possible to develop a computer model, which resulted in the prediction of the amount of extracted concentrate with minerals from the ore mass with associated compounds. Also the well drilling technologies were analyzed and their usage were examed according concrete geological conditions. The obtained results of calculations showed a change in the amount of minerals extracted from the rock mass depending on the mass of the working agent, the volume of leached ore and the solvent percolation rate.

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