عنوان مقاله:

A Methodology to Estimate Ores Work Index Values, Using Miduk Copper Mine Sample

محل انتشار:

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خلاصه مقاله:

It is always attempted to reduce the costs of comminution in mineral processing plants. One of thedifficulties in size reduction section is not to be designed properly. The key factor to design size reductionunits such as crushers and grinding mills, is ore's work index. The work index, wi, presents the oregrindability, and is used in Bond formula to calculate the required energy. Bond has defined a specificrelationship between some parameters which is applied to calculate wi, which are control screen, fineparticles produced, feed and product d80.In this research work, a high grade copper sample from Miduk copper concentrator was prepared, and itswork index values were experimentally estimated, using different control screens, 600, 425, 212, 150, 106and 75 microns. The obtained results from the tests showed two different behaviors in fine production.According to these two trends the required models were then defined to present the fine mass calculationusing control screen. In next step, an equation was presented in order to calculate Miduk copper ore workindex for any size. In addition to verify the model creditability, a test using 300 microns control screenwas performed and its result was compared with calculated ones using defined model, which showed agood fit. Finally the experimental and calculated values were compared and their relative error was equalto 4.11% which is an indication of good fit for the results.

کلمات کلیدی:

Modeling, Work Index, Miduk Copper, Control Screen, Bond Ball Mill