

https://dspace.org/

Effects of mixture of grinding media of different shapes on milling kinetics

Simba, Kalumba Pascal

2011-11-07
http://hdl.handle.net/10539/10712

Downloaded from a DSpace repository. https://dspace.org/

Abstract

This dissertation focuses on the determination of breakage parameters in order to describe the performances of mixtures of grinding media of different shapes.

A series of batch grinding tests were carried out using the same mass of spherical balls, Eclipsoids^{TM} and cubes to break coarse, medium and fine sizes of quartz material. Then, mixtures of the same mass made of spherical balls and cubes, spherical balls and Eclipsoids^{TM} were successively considered. The breakage parameters were determined and used to evaluate the grinding performances of the mixtures of grinding media.

It was found that mixtures of grinding media shapes can increase the breakage rate in a particular milling environment. But, spherical balls remain the most efficient grinding media.

Finally, an optimal mixture made of grinding media of different shapes cheaper to manufacture can be used in the grinding process alternatively to 100 % balls.