

THE EFFICIENCY OF BLASTING VERSES CRUSHING AND GRINDING

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ABSTRACT

This paper compares energy requirements for blasting, crushing and grinding. By tracking electrical consumption for various powder factors, a general trend has appeared. This study involves over 100 million tons of ore and powder factors ranging from .5 lbs/LT to .8 lbs/LT. Actual energy usage is compared to predicted energy based on the Bond equation.

Blasting may enjoy as much as a 3:1 cost advantage over grinding. This is a startling notion considering that energy is cheaper when purchased as electricity by ratio of 5:1 when compared to powder. This combination suggests that the blasting process has a marginal efficiency advantage of 15: 1. Estimates of 1% to 2% efficiency for grinding and 15% to 30% for blasting would fit this ratio.