Rockmedia

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ABSTRACT

The rock content of SAG mills is dominated by the fraction of coarse and competent rock in their feed with variations in this rock fraction driving fluctuations in mill filling and throughput. This is generally seen as a limitation of SAG milling, with a strong industry focus on minimising coarse rock in the feed. However, overly aggressive size reduction or fluctuating blends of harder and softer ores leave SAG mills operating well below installed power, while overloading ball mills. The 'Rockmedia' technique is proposed to help redress this underperformance by using relatively simple and low-cost mill utilisation and control methods. The technique is to maintain an independent feed source of rock in the media size range, 90 to 250 mm, and to have direct control of this feedrate Competent feed is diverted to a buffer stockpile or a bin to be direct-fed to the mill feed belt as an independently controlled bleed-in, according to current mill filling. The required coarse rocks can be sourced by processes such as using blasts designed to preserve a coarse fraction; rehandling from the stockpile perimeter; deliberately biasing feed delivery off conveyors; screening out a top size; or diverting recycle pebbles. Rockmedia can significantly increase productivity in existing SAG circuits and be built into future circuits to maximise equipment utilisation while reducing specific milling energy through more efficient and stable operation, and reducing indirect steel grinding media energy usage, both in the SAG mill and downstream ball mills.