Varistem®

Blast Stemming Plugs

Improvement in crusher throughput

Varistem® is a patented blast stemming plug for mining, quarrying and civil blasting applications. The plugs contain blast energy for longer, resulting in a range of benefits depending on how it is incorporated into your blast design. The Varistem® blast stemming plugs are manufactured in a range of different sizes, catering for blasthole diameters from 51mm to 203mm.

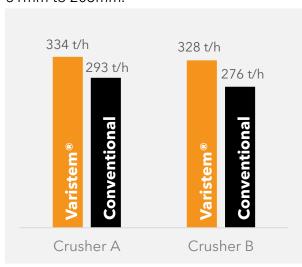


Figure 1: Quarry crusher throughput over a 2-week time period (Lheewijt et. al., 2012)¹

In a similar but more robust study, Wotorchi-Gordon (2010)² measured crusher throughout over an 11-month period at Tarkwa gold mine in Ghana. Over this period, it was found that the use of the Varistem® plugs improved crusher throughput by 13.6% (as shown in Figure 2). Wotorchi-Gordon (2010)² further noted in his study that load and haul cycle times had improved, and that excavation of the material was easier due to the improvement in fragmentation.

One of the largest financial gains from using the Varistem® blast stemming plugs is an improvement in overall fragmentation. This results in an improvement in loading rates, bucket fill factors, load and haul cycle times, and ultimately crusher throughput. Lheewijt et. al. (2012)¹ conducted a study to determine, amongst other factors, the impact of the use of the Varistem® plugs on crusher throughput at a limestone quarry. Figure 1 presents the crusher throughput results obtained in this study, showing an improvement of between 14% to 19%. Additionally, Lheewijt et. al. (2012)¹ found that vibration levels were reduced by 33% and truck loading time was reduced by 6.2% (CAT 330D Backhoe).

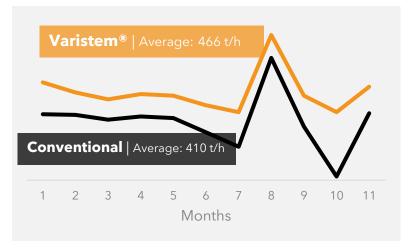


Figure 2: Gold mine crusher throughput over an 11-month time period (Wotorchi-Gordon, 2010)²

²Wotorchi-Gordon, E. (2010). A Study on Crusher Throughput as a Comparative Measure of Fragmentation Using Varistem Blasting Plugs and Conventional Stemming - A Case Study. University of Mines and Technology Tarkwa Ghana - Mining Engineering Department.



¹Lheewijt, W. et. al. (2012). A Comparison Study on Conventional Blasting and Stem Plug Blasting Technique. Prince of Songkla University Thailand, Department of Mining and Materials Engineering.