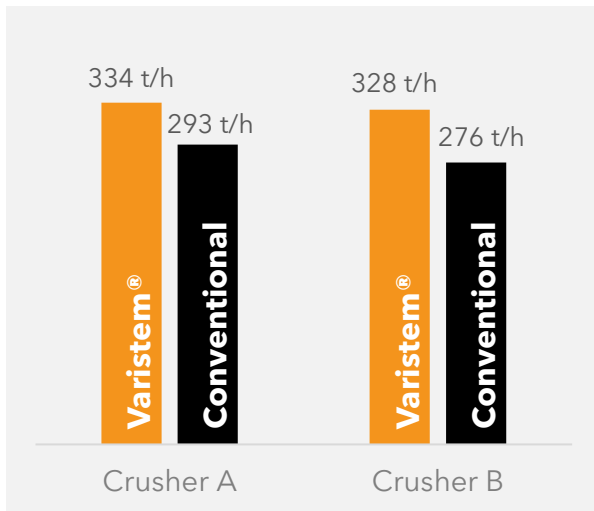


# Varistem®

## Blast Stemming Plugs

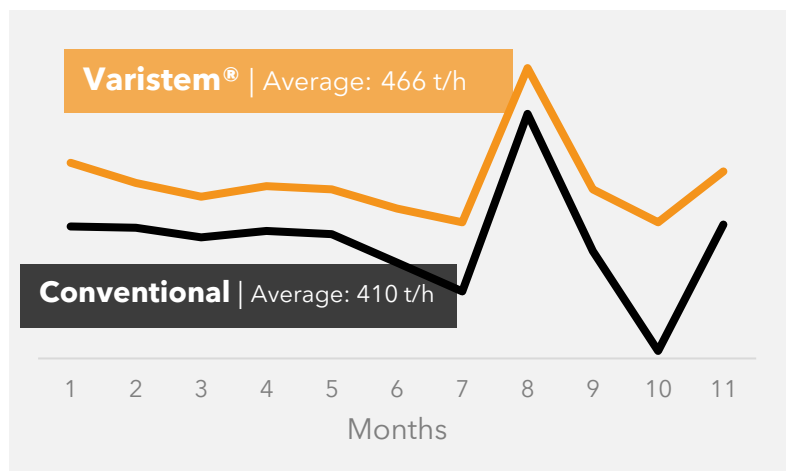
### Improvement in crusher throughput

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)<sup>1</sup>

In a similar but more robust study, Wotorchi-Gordon (2010)<sup>2</sup> measured crusher throughput 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)<sup>2</sup> 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.



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

<sup>1</sup>Lheewijt, 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.

<sup>2</sup>Wotorchi-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.