

# **Electronic Detonators – Do They Add Value?**

**Dr CM Lownds  
Sasol Mining Initiators  
USA**

**T A Louw  
Sasol Mining Initiators  
South Africa**

## **Abstract**

In an era where profits are constantly being eroded, mines are looking towards technology developments to assist them in solving mining problems and reducing mining costs. An emerging technology that could assist mines in becoming more cost effective is electronic detonators. Electronic detonators have been under development for several years. Over the past three years, the spotlight has fallen on commercial use of electronic detonators and the extent to which the promise of precise and programmable timing can assist mines with their environmental and productivity problems.

This paper uses case studies to demonstrate both surface and underground applications where electronic detonators and blasting systems were used to solve typical mining problems such as vibration and fragmentation. Safety aspects such as hanging wall conditions and high wall stability also benefited from the use of electronic detonators.

The paper also demonstrates how the use of accurate electronic detonators and blasting systems has resulted in improved/more even fragmentation with further downstream efficiencies. These efficiencies may include increased cast percentages, reduced oversized rocks, quicker cleaning times and increased production rates.

## **Introduction**

The use of electronic detonators is constantly being evaluated by mines, quarries and construction engineering companies in order to access potential economic/productivity/safety and environmental gains. This paper focuses on applications where benefits, relating to the use of electronic detonators, were demonstrated. Although the Sasol UNI Tronic™ electronic initiation system was used, this paper does not focus on differences between electronic initiation systems, but rather on the benefits achieved from using electronic detonators as opposed to conventional initiation systems.

The paper is divided into two main sections – underground applications and surface applications and is an omnibus of case studies done by Sasol Mining Initiators (SMI).