

# **PRESSURE EFFECTS ON DENSITY OF SMALL DIAMETER EXPLOSIVES**

B. Mbhanty<sup>1</sup> and R. Deshaies  
Explosives Technical Centre, C-I-L Inc.  
McMasterville, Quebec, CANADA J3G 1T9

<sup>1</sup> also Department of Mining and Metallurgical Engineering, McGill University, Montreal, Quebec, Canada H3A 2A7.

## **ABSTRACT**

The importance of controlling density of commercial explosives, and the various means to achieve it are described. In the field conditions responsible for density changes during blasting and their effect on blast results are examined. Understanding of the behaviour of density control ingredients such as gas bubbles, glass and plastic microballoons under pressure, is considered essential to predicting explosives performance. Both static and dynamic pressure effects have been studied for typical donor-receptor cartridge configurations. The amplitude and temporal characteristics of dynamic pressures inside receptor explosives have been studied by means of the underwater test, and guidelines developed to limit density changes due to external pressures.

It is shown that the pressure in the interior of an explosive cartridge from the same incident shock pressure depends critically on the type of void incorporated in the explosive matrix.