

LEXFOAM FOR HUMANITARIAN DEMINING

John Anderson, Mining Resource Engineering Limited
1555 Sydenham Rd, R.R. #8, Kingston, Ontario Canada K7L-4V4

Joseph Trocino, Golden West Products International
15233 Ventura Blvd., P-8, Sherman Oaks, CA USA 91403

Steven Murray, Defence Research Establishment Suffield
P.O. Box 4000, Medicine Hat, Alberta, Canada, T1A 8K6

ABSTRACT

This paper describes the development of LEXFOAM® (Liquid EXplosive FOAM) as a unique low density explosive, and its successful application as an effective tool for "in-place" demolition of landmines and unexploded ordnance. Explosives research using aerosol technology led to the development of LEXFOAM whose components are safely transported and stored as flammable liquids. These components are mixed on site to produce an explosive foam, which enhances safety and minimizes logistical problems. Hand-held, Backpack and Palletized Delivery Systems form a versatile family of dispensing systems to suit any application.

Instrumented experiments have determined the detonation velocity, as well as the detonation and in-ground pressures for a number of LEXFOAM configurations. Based on these data, and results of trials against a wide variety of anti-personnel (AP) and anti-tank (AT) mines, the optimum LEXFOAM density and foam layer thickness have been found to be 0.5 g/cc and 5cm respectively. The mines tested include bounding fragmentation, pressure operated and blast resistant AP mines, as well as pressure operated, and pressure operated/blast resistant AT mines. The results demonstrate that LEXFOAM is 100 percent effective in neutralizing many different mine threats.

LEXFOAM and LEXFOAM Delivery Systems have been shown to be safe, easy to use, cost effective and proficient tools for ordnance demolition. Moreover, safety and simplicity make these systems particularly suited for use by indigenous operators during humanitarian demining operations. Finally, project managers can rest assured that LEXFOAM, unlike conventional high explosives, is not likely to be misappropriated for misuse in military or terrorist operations.