



Trial/Test Report Abstract

Report:

Report on a second blast test of the ROFI Face Mask

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Abstract

During the period August to November 2007 a new type of Personal Protective Equipment (PPE), the Body Armour “Armadillo“ and a Face Mask made by ROFI Industrier AS in Norway, were tested with guidance from a Comité Européen de Normalisation (CEN) developed CEN Workshop Agreement (CWA 15756:2007).

Out of this CWA the test protocol for blast testing of PPE was used. The test was undertaken with a pedestrian version 50th percentile male Hybrid III anthropomorphic dummy as wearer of the PPE during the test. It was dressed in the PPE and was placed in a kneeling position in front of an explosive charge. Because to difficulties in producing the explosive charge (mine described in the CWA containing 240 g of TNT) an equivalent explosive compound was used. The explosive compound used was so called “Svensk sprängdeg m/46”, which is a mixture of 86% Pentyl and 14% mineral oil giving a detonation speed 6914 m/s and maximum detonation pressure 18,4 GPa which compared to TNT’s 6930 m/s and 21 GPa is almost an equivalent.

However due to a misunderstand the charge was treated as a pure Pentyl compound having quite different data, 8400 m/s and 34 GPa. Therefore the weight of the m/46 charge was reduced by a factor 1,66 giving a charge of 145 g. Since both the Body Armour and the Face Mask were not penetrated by any fragments during the blast the equipment was considered to meet the requirements stated in the CWA. This result was then reported by SRSA, report no. SRV Diarienr 339-9978-2007, to ITEP and published on their website.

When discovering this mistake a new blast test for the Face Mask was set up using 240 g of m/46. The distance from the centre of the top surface of the simulated mine to the nose of the dummy was set according to the CWA (550 mm and at 70° from the horizontal). The evaluation of the test results was focused on analysing whether the Face Mask could withstand the effects caused by an Anti Personnel Mine blast. The results show that the polycarbonate (visor) is damaged (broken) giving severe damage to the witness sheet behind the visor.