

Respirator Performance During Military Field Trials

Sven van der Gijp and Leo Steenweg

TNO PML

Lange Kleiweg 137, P.O.Box 45, 2280 AA Rijswijk, The Netherlands

Tel: +31 15 284 3402 Fax: +31 15 284 3963

e-mail: gijp@pml.tno.nl

ABSTRACT

Uncertainty exists about the real protection offered by military gas masks when used in the field. In civil applications, it has been known that Work Place Protection Factors (WPPF) may deviate considerably in an unfavourable manner from nominal protection factors, determined under laboratory conditions. For this reason, PML and DSTL developed a method for assessing the protection factor of military gas masks in the field situation; the resulting field protection factor is comparable to the civil WPPF. Characteristic for the method is that the test subject is capable of performing normal duty activities. The method includes the use of the TSI Portacount, that measures the ratio of the outside and inside ambient air dust concentrations. The use of an air pressure sensor inside the mask and of an accelerator sensor on the mask, allows the monitoring of breathing and head movement effects. In this paper, the results of a joint UK-Dutch field trial are presented. Special attention is given to the breathing patterns of soldiers and the corresponding protection levels of the FM12-respirator during shooting, digging, decontamination and patrolling exercises.