

Parameter Study for Total Inward Leakage Measurements

J. Albers; I.T. Tuinman; S. V.D Gijp

TNO Defence, Security and Safety
Threat and Protection
PO Box 45
Rijswijk, 2280AA
The Netherlands
Email: tineke.albers@tno.nl

With the increase in the (perceived) threat of biological agents the desired and required fit factors of military and first responder breathing protection have increased.

In order to measure fit factors with the total inward leakage method at the desired levels high concentration challenge aerosols are necessary. Because the fit factor is particle size dependent the allowed particle size distribution of the challenge aerosol has to be prescribed. It must be representative of biological agents.

The influence of sampling probes, concentration and particle size distribution of the challenge aerosol, and the measurement set-up is the subject of the study reported here. Other aspects that are discussed include the correctness and reproducibility of measurements that are necessary to identify problems to be expected in a real situation where hard physical work is expected.

One of the conclusions is that the use of sampling probes (e.g. Bostock, Howie) with the aim taking more representative samples from the mask had no clear effect on the measurements results.