

ISRP 2002 abstract

Presenter/author	Title	Abstract
McCurdy, Gary Vijayakumar, R. <i>Air techniques</i> <i>International,</i> <i>Owings Mills, MD,</i> <i>USA</i>	Protection Factor and Filter Efficiency in Protective Face Masks	<p>The laboratory protection factors required of commercially available full facepiece protective masks vary from under 1000 for civilian masks to over 10,000 for military masks. Current trends in the military seek to increase this protection factor to well above 100,000. That is, the mask, if properly designed, tested and fitted to the subject cannot allow more than 10 parts per million of the challenge concentration to reach the subject in order to achieve a protection factor of 100,000.</p> <p>It is well understood that defects in the components of a mask and/or a poor fit on the subject will lead to a poor protection factor. In a defect free mask, filter efficiency is arguably the most crucial variable besides face fit that will affect the ability of the mask to deliver the desired protection factor. However, as required protection factors increase, the relatively poor performance of a filter cartridge may hide defects in mask components, and hence could hide the source of a lower than expected protection factor.</p> <p>This paper will examine the relationship between the maximum estimated protection factor and the rated filter efficiency. For example, HEPA filters with a rated efficiency of 99.97% (or 300 ppm), are used in masks that display protection factors in excess of 10,000 (100 ppm). The results relating filter efficiency, mask defects, and protection factor will be presented and may lead to improved mask specifications.</p>