

# ISRP 1999 abstract

Presenter/author	Title	Abstract
<b>Richardson, Grant</b>  <i>Chemical and Biological Defense Sector, DERA Porton Down Protection &amp; Decontamination Salisbury, Wilts SP4 0JQ UK</i>	<b>An Improved High Sensitivity Sodium Flame Photometer for Determining the Protection Factors Provided by Military Respirators</b>	<p>With the advancement of respirator technology providing higher levels of protection, the current generation of flame photometers employed to detect the salt analyte are found to lack the resolution to detect the low levels that penetrate into the respirator. Compounds such as CO<sub>2</sub> and H<sub>2</sub>O present within the respirator sample as well as pressure and temperature fluctuations are observed to affect the flame background. In the current instrumentation this change in flame background is misinterpreted as salt. By employing a patented technique, it is now possible to monitor these changes in flame background. The system incorporates a rotating filter wheel located in front of the photo multiplier detector, which contains a number of optical bandpass filters that are insensitive to the sodium emission. As the wavelengths have been selected to respond in an identical manner to the sodium band to impurities and other flame changes, it is possible to precisely predict the flame background using a dedicated software package. Other features are also incorporated to further improve the system resolution. The entire unit has been mounted in a mobile laboratory facility to allow protection factors to be acquired both at military installations and out in the field.</p>