

## ISRP 1999 abstract

Presenter/author	Title	Abstract
<b>Zhuang, Ziqing</b> <b>Coffey, C. C.</b> <b>Campbell, D. L.</b> <b>Myers, W. R.</b>  <i>National Institute  for Occupational  Safety and Health  Mail Stop H-117  1095 Willowdale  Road  Morgantown, WV  26505-2888  USA</i>	Comparison of the Companion and Modified PortaCount <sup>TM</sup> Methods for Fit Testing N95 Respirators	<p>In 1995, the National Institute for Occupational Safety and Health (NIOSH) revised the particulate respirator performance regulations contained in Title 42 Code of Federal Regulations, Part 84. Soon after questions arose regarding whether N95 respirators (one of the new classes of particulate respirators) could be quantitatively fit tested. In response, NIOSH and TSI Incorporated researchers developed a method for fit testing N95 filtering-facepiece respirators using the PortaCount Plus<sup>TM</sup>. The PortaCount Plus<sup>TM</sup> fit test was designed to measure fit factors (i.e., face seal leakage only). Due to some N95 filter media having significant penetration of ambient particles, the PortaCount Plus<sup>TM</sup> when used with a N95 respirator may not measure just face seal leakage but total penetration (i.e., filter penetration and face seal leakage). Total penetration was converted to face seal leakage by subtracting out filter penetration. A filter ratio test clamp was developed to measure filter penetration with the PortaCount Plus<sup>TM</sup>. TSI also developed a new accessory (the N95-COMPANION<sup>TM</sup> for the PortaCount Plus<sup>TM</sup>) to fit test N95 respirators.</p> <p>The purpose of this study was to determine how well the fit factors from these two methods correlate. The facepiece fit of each respirator model was measured on a panel of subjects with varying face sizes. A "standard" PortaCount Plus<sup>TM</sup> test was conducted for each subject/respirator combination. Immediately after the "standard" PortaCount Plus<sup>TM</sup> test, a fit test for each subject/respirator combination was conducted using the N95-COMPANION<sup>TM</sup> in conjunction with the PortaCount Plus<sup>TM</sup> without the respirator being redone. After the N95-COMPANION<sup>TM</sup> test, filter penetration was measured on each respirator using the PortaCount Plus<sup>TM</sup> with the clamp, and an adjusted fit factor computed. The results of analysis of variance indicated that the geometric mean of the N95-Companion<sup>TM</sup> fit factor (49) was not significantly different from the geometric mean of the adjusted fit factor (35).</p>