ISRP 2002 abstract

Presenter/author	Title	Abstract
Berndtsson, Goran *The SEA Group, Branford, Connecticut, USA*	**The Role of Peak Inhalation Air Flow in the Testing of Air Purifying Respirators**	It has been well known since the 1940s that humans are capable of breathing much more air, and at much faster flows, than the airflow used in the testing of filters. This is confirmed by a great number of tests on real people at normal work, yielding a large collection of detailed data. One test involved 90 minutes' continuous logging of the breathing cycle of workers performing normal work routines. Another test measured the breathing of fire fighters climbing the stairs of a high-rise building. The test equipment measured the volume and speed of every breath, minute volume, and total volume of air breathed during the entire period. These tests show that on average, 60–70% of the air breathed by a person performing moderate work is above the flow rate at which filters are commonly tested (95 l/min). In terms of PIAF, about 40% of a working person's flow rate is more than twice the test rate, and about 10–15% is more than 3 times the test flow. This paper presents the data and discusses the implications of the findings; among other things, that filters need to be tested at higher, more representative flow rates, and at more than one rate.