

# ISRP 2002 abstract

Presenter/author	Title	Abstract
<b>Aitken, R.J.*</b> <b>Apsley, A.*</b> — <b>Bagley, M.J.**</b> <b>Brown, R.C.**</b> <b>Hemingway, M.A.**</b> <b>Rajan, R.^</b>  <i>*) Institute of Occupational Medicine, Edinburgh, UK</i>  <i>**) Health and Safety Laboratory, Sheffield, UK</i>  <i>^) Health and Safety Executive, Bootle, UK</i>	<b>Capacity of Activated Carbon Filters: Theory and Experiment</b>	<p>Respirators fitted with a filter cartridge containing activated carbon are widely used to protect against hazardous vapours present in the workplace. The health and safety of the wearer depends on a good knowledge of the service life of the carbon filter fitted to the respirator under the particular conditions of use. Presently this is poorly understood.</p> <p>Class A1 respirator filters were loaded with various solvent vapours in the laboratory using apparatus for generating standard atmospheres. The airflow rate and humidity were altered to give a range of test conditions for each solvent used with the challenge concentration set at a nominal 200 ppm for all vapours . Vapour concentrations were measured upstream and downstream of the filter so that the time for vapour breakthrough and the total mass of absorbed vapour could be measured.</p> <p>In general the variability in filter performance was higher than expected. The times for the vapour concentration downstream of a filter to reach 10% of that upstream of a filter was between 10 and 37 hr for Manufacturer A A1P2 filters and 22 to 30 hr for Manufacturer B A1P3 filters. The times taken for the downstream vapour concentration to reach the exposure limits was between 18 and 38 hr. Problems with instantaneous breakthrough were also identified.</p>