

## ISRP 2002 abstract

Presenter/author	Title	Abstract
<p>Hori, Hajime Ishidao, Toru Ishimatsu, Sumiyo</p> <p><i>University of Occupational and Environmental Development, School of Health Sciences, Japan</i></p>	<p><b>Thermal Regeneration of a Respirator Cartridge for Organic Vapors</b></p>	<p>The breakthrough time of organic vapor respirator cartridges for polar and high volatile compounds is generally short because of their weak adsorption affinity to activated charcoal. Such lower adsorption affinity component may easily desorb by heating. In this study, thermal regeneration characteristics of a respirator cartridge that adsorbed single component of vapor (methanol, acetone, isopropyl alcohol (IPA), methyl acetate or methyl ethyl ketone) and two-component vapors (IPA and toluene) were investigated. The vapor introduced into a respirator cartridge (Shigematsu works, CA-104NII), and the breakthrough curve was obtained. After the breakthrough was detected, the cartridge was heated and the desorption curve was obtained by supplying air continuously. This adsorption-desorption cycle was repeated and the effect of the cycle on the breakthrough time was investigated under the desorption temperature was 65°C and the air flow rate was 20 L/min. In a single component, the breakthrough time on a regenerated cartridge was shorter than that on a new one, but there was no significant change in the breakthrough time on a regenerated cartridge after the adsorption-desorption cycle was repeated. In IPA-toluene mixture system, desorption was started when the earlier breakthrough component (IPA) exceeded the breakthrough point. The breakthrough time of IPA tended to decrease with the increasing adsorption-desorption cycle but it became constant after the cycle was repeated more than 5 times.</p>