

ISRP 2000 abstract

Presenter/author	Title	Abstract
Hori, Hajime (Prof.) UOEH, Fukuoka, Japan	Thermal Regeneration Method of a Respirator Cartridge for Organic Vapors	<p>Respirator cartridges cannot be used beyond their service life, that is, the breakthrough time. However, the breakthrough time of organic vapor cartridges using activated charcoal is short for polar compounds, especially for methanol. Methanol is a popular solvent in the workplaces, and the vapor concentration is easy to exceed the Threshold Limit Values because methanol has high volatility. Therefore, when a worker wears a respirator when he treats materials containing methanol, he must exchange the cartridge several times a day.</p> <p>We studied the possibility of thermal regeneration of a respirator cartridge that adsorbed methanol or acetone vapor. The vapor introduced into a respirator cartridge (Shigematsu works, CA-104NII), and the breakthrough curve was obtained. After the cartridge was saturated with the solvent, 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.</p> <p>The desorption rate increased with the increasing desorption temperature. When the desorption temperature was 60C, desorption of methanol was almost completed within 90 minutes. There was no significant change in the breakthrough time for methanol vapor after the adsorption and desorption cycle was repeated 24 times.</p>