

Gas Desorption from Chemical Cartridges

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ABSTRACT

It is known that the sorbent like activated carbon desorb gases which are adsorbed physically. In order to find how the phenomenon affects chemical cartridges for gas respirators, we carried out the following tests on organic vapor cartridges.

TEST-A: Assuming that a gas respirator wearer comes into a workplace with toxic gas and out to a resting place with clean air by turns, we investigated the breakthrough time and desorption of gases from organic vapor cartridges through which challenge gas such as Cyclohexane, Dichlorometane at 300ppm and clean air passed by turns.

TEST-B: Assuming that the organic vapor cartridges once stored would be re-used, we prepared the organic vapor cartridges which were passed the organic vapor then stored in the laboratory for a certain period. The desorption of the gas from the cartridges was investigated by passing clean air.

We obtained the result from **TEST-A** that the breakthrough time of the cartridges passed challenge gas and clean air by turns becomes shorter than the case of continuous challenge gas passing.

We obtained the result from **TEST-B** that desorption might possibly occur by passing clean air depending on both conditions of challenge gas and storage.

Based on the test results, we will discuss on the management of gas respirators which are used repeatedly or after storage.