

Suitable chemical cartridges against gaseous substances generated from the solutions used for preservative treatment

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Formalin solutions and the fixative mixtures are used as a preservative treatment at medical colleges and hospitals in Japan. In the operation using such solutions, gas respirators with the chemical cartridges for formaldehyde have been used for respiratory protection. We conducted tests to make sure that the cartridge selection is suitable for the situation of operating with the relevant solutions.

First we verified typical solution concentrations with medical colleges and hospitals. Then we identified the gaseous substances actually generated from the typical solutions, and we measured the breakthrough time of chemical cartridges against such gaseous substances simultaneously. We tested chemical cartridges designed for formaldehyde which have been selected for the operation in question, and also tested those designed merely for organic vapors for reference.

In examination of gaseous substances, we detected formaldehyde dominantly in the air flow after bubbling a typical formalin solution, and formaldehyde and ethanol were mainly detected from bubbling air through a typical solution of fixative mixture in the same manner.

In testing the performance of cartridges, we found the facts as follows. The cartridges designed for formaldehyde are effective against formaldehyde and ethanol. On the other hand, the cartridges designed merely for organic vapors are suitably effective against ethanol; however they show poor performance against formaldehyde.