[ABS18]

Required Information of Desorption when Using Gas Filters

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Sorbents used for gas filters retain the toxic gases by adsorption. It is known that a sorbent shows the phenomenon of desorption when the force of attraction is weak. In order to observe the phenomena of desorption, after the specified test gas was supplied to the relevant gas filters, the clean air was supplied to them and the effluent gas concentration was measured. We found that the gas filters for organic vapors showed a variety of desorption behavior depending on the type of test gas. For the test gases which showed desorption clearly, the gas filter for organic vapors showed the tendency of the higher initial desorption level at the larger amount of adsorbed gas and/or the longer time after gas supplied. We found that the gas filters for inorganic gases showed no desorption in many cases, but some gas filters showed phenomena of desorption. Examples are that the gas filter for acid gases absorbed hydrogen chloride released the same sort of gas and that the gas filter for chlorine absorbed chlorine released hydrogen chloride. It is especially noteworthy that the gas filter for chlorine releases other sorts of gas than the influent test gas. Based on these facts, the information on the type of potential gases which may show the phenomena of desorption as well as the basic performances such as breakthrough time shall be provided to the users of gas respirators. This is also the factor to decide whether the gas filters can be reused.