

Abstract

[Research Title]

Development of atmosphere emission asbestos on-site detection technology at demolition of buildings

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Asbestos, a natural mineral fiber, has been widely-utilized for various industrial materials such as building materials due to its excellent heat resistance. However, its useage in Japan is prohibited in principle due to the severe health risks associated with inhaling airborne asbestos, which can lead to lung cancer. Generally, the presence or absence of asbestos dispersed in the air is observed by phase contrast microscopy at building demolition sites, but this method is impractical for on-site detection due to its time-consuming nature. In this study, we aimed to develop a technology for rapid detection of asbestos dispersed in the air at demolition sites. A novel *N,N'*-diethyl-p-phenylenediamine (DPD) coloring method is developed. As a result of this research, the detection sensitivity for asbestos was improved. being to visually detect asbestos fibers as low as 1 f/L- in the air without using analytical equipment such as a microscope. DPD technology offers a promising on-site tool for environmental administrators. It allows for effective detection of airborne asbestos, supporting evidence-based administrative guidance grounded in scientific knowledge.

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