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Experimental Research on the Decontamination Effect of Aqueous Solutions Containing Organic Acids on the Release of Ammonia within Confined Space

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Abstract

Comparative tests between pure water curtain and water curtain which contains three CH_3COOH, $C_6H_8O_7$, $C_4H_6O_5$ organic acids and surfactants were carried out in view of the release of ammonia in confined space. The results showed that the organic acids can promote the chemical decontamination effect of the water curtain on ammonia. The decontamination mechanism was physical absorption, air entrainment, physical block and chemical absorption. It was found that the addition of surfactant can improve the surface properties of the solution, reduce the surface tension, increase the contact area of the water curtain and ammonia, and efficiently promote the physical and chemical effect of the water curtain which contains organic acid additive. The causticity of organic additives was tested, and the results showed that three CH_3COOH, $C_6H_8O_7$, $C_4H_6O_5$ organic acids have faint corrosive effect on the surrounding facilities.

Keywords: Ammonia, Water curtain, Decontamination mechanism, organic additives, corrosive effect