

عنوان مقاله:

Biodeodorization of Barrels Containing Natural Gas Odorants by *Bacillus cereus*

محل انتشار:

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خلاصه مقاله:

Introduction: All sulfur organic odorants used in the Iranian gas industry enter the country in ۲۰۰-liter barrels. There are ways to clean up the empty barrels contaminated with these materials. In the Gas Company, the currently used method is chemical oxidation (using sodium hypochlorite and caustic). In this study, the biological desulfurization and degradation method of mercaptan was studied. **Materials and Methods:** Desulfurizing bacteria in the university microbial collection, together with bacteria isolated from gas odorant barrels, were examined, among which one of the species had the highest and fastest decomposition rate. This bacterium belongs to the *Bacillus cereus* family. The most important factors affecting biological desulfurization including initial bacterial concentration, the concentration of odorant, and the Oil Fraction Phase (OFP) were optimized. **Results:** These three factors were studied using an experimental design. Initial bacterial concentrations were evaluated at five levels from ۱۰ to ۵۰ ml with an optimum concentration of ۳۰ ml. The OFP was also evaluated at five levels from ۱۰ to ۹۰%, with ۵۰% being optimized. Concentrations of odorant were also evaluated from ۲۵۰۰ to ۱۲۵۰۰ ppm, with an optimum concentration of ۷۵۰۰ ppm. **Conclusions:** Operational testing was carried out in one of the barrels in the optimized conditions for ۴۸ h. The results showed ۷۹.۸% efficiency in removing odorant.

کلمات کلیدی:

Bacillus cereus, Bio-degradation: Bio-desulfurization, Mercaptan, Optimization

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