

Hydrogen Sulfide Gas Removal Depending on Organic Biofilter Media

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Abstract

The removal efficiencies of hydrogen sulfide (H^2S) gas depending on different organic biofilter media in a two-layered column were evaluated in this study. Two columns, each packed with rock wool and wood chips were inoculated with *Pseudomonas* sp. SUL4 while one column was just packed with compost. Moisture content of media was maintained at 50-60% based on wet weight while pH was kept at 6 to 8 during the experimental periods. On the third day of operation, 50% and 75% H_2S gas removal efficiencies were achieved from the first layer at empty bed residence time (EBRT) of 30 seconds for rock wool and compost while 35% at 80 seconds for wood chip. The rock wool and compost media exhibited high removal efficiencies because of high cell activities and sufficient nutrient supply. H^2S gas inlet concentration ranging from 20-200 ppm_v was supplied to three biofilter columns and the maximum removal capacity of each medium was estimated. After 50 days of operation, the maximum elimination capacities were 184, 747 and 749 g-Sulfur/m³-bed/day in wood chip, rock wool and compost media, respectively. Further experimental results for intermittent gas loading will be performed.

References

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