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Original Articles

Influence of Liquid Height to the Oxidation Process of Landfill Leachate by Using Ozone

オゾンを用いた埋め立て浸出水の酸化処理過程に及ぼす埋立浸出水液面高さの影響

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ABSTRACT

The influence of liquid height on chemical oxygen demand (COD) of leachate was investigated. When 400 mL leachate was filled in a thick tube reactor (TTR) with height of 0.063 m, COD removal efficiency was 45.69%, while ozone dosage was 3.35 mgO3/mgCOD. As leachate was filled in a slender tube reactor (STR) with a height of 0.815 m, removal efficiency was 51.81%, and ozone dosage was 3.12 mgO_3/mgCOD. The results indicated that COD removal efficiency increased with the height of liquid. It is believed that the liquid height increased hydraulic pressure and resulted in COD removal efficiency.

浸出水の化学的酸素要求量（COD）に及ぼす処理時の液面高さの影響を調べた。浸出水 400 mL を 0.063 m の厚管反応器（TTR）に充填した場合、COD 除去効率は 45.69%であり、オゾン量は 3.35 mgO_3/mgCOD であった。浸出水を高さ 0.815 m の細管反応器（STR）に充填した場合、COD 除去効率は 51.81%、オゾン量は 3.12 mgO_3/mgCOD であった。その結果、COD の除去効率は液体の高さに応じて上昇することがわかった。液面の高さが水圧を増加させたため、COD の除去効率を高めたと考えられる。

KEYWORDS: Ozone, Advanced Oxidation Processes, Hydraulic Pressure, Landfill Leachate, Liquid Height

キーワード：オゾン、促進酸化プロセス、水圧、埋立浸出水、液面高さ