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THE PRECONCENTRATION OF METHYLENE BLUE WASTEWATER USING THE LAYER CRYSTALLIZATION TECHNOLOGY

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Abstract

This study was carried out to determine the feasibility of applying a freeze–concentration technique to purify dye wastewater, such as methylene blue (MB) solution using a stationary wastewater vessel. In this study, we investigated the impact of freezing temperature, initial MB wastewater concentration and vessel depth upon the removal ratio of MB. Results showed that when the freezing temperature was decreased (from –5 °C to –15 °C), the freezing rate increased. The freezing rate was not significantly affected for the different concentrations of the MB solution. The removal ratios of MB at 0–20 mm of ice layer for the concentrations of MB of 1000 mg/L, 2000 mg/L and 4000 mg/L were 84. 29 %, 82.17 % and 80. 02 % respectively at the freezing temperature of –5 °C.

Key words: freeze–concentration, ice crystal, MB, removal ratio, wastewater

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