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ADSORPTION OF HEXACHLOROCYCLOHEXANE BY RAW AND SURFACTANT MODIFIED MEERSCHAUM

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Abstract

The adsorption of hexachlorocyclohexane (HCH) by modified meerschaum was studied. The comparison of the meerschaum modified by anion and cation surfactant was conducted to explore their effect on HCH adsorption. The results showed that the absorbability of HCH by the CTMAB-M (cetyltrimethylammonium bromide-modified) is better than that of SAS-M (sodium dodecyl sulphonate-modified) because the CTMAB-M has fluffier fibers structure. The addition of amount of adsorbents should improve the adsorption. When pH value exceeds 11.0, adsorption exhibits optimal behaviour. Results of isotherms studies reveal that the Freundlich isotherm is the best model in current experimental conditions to describe the adsorption behaviour. The adsorption kinetics of NM (natural meerschaum) and CTMAB-M followed the pseudo-first-order kinetic model while SAS-M followed the pseudo-second-order kinetic model. The calculated thermodynamic parameters indicated that the adsorption of CTMAB-M was spontaneous and endothermal in nature.

Key words: adsorption, hexachloro-cyclohexane (HCH), meerschaum

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