



Synthesis of Nanosilica by Condensation Method For Crude Oil Adsorption

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ABSTRACT

A novel condensation method using surface active agent CTAB for synthesizing nanosilica was reported. Effects of CTAB concentration in ethanol and TEOS/NH₃ molar ratio were investigated for improving the nanosilica structure. Results showed that the nanosilica could be well-structural controlled at the CTAB concentration in ethanol of 4% and TEOS/NH₃ molar ratio of 1.5/1 under pH = 9.5. Another new point of this report was to also investigate crude oil adsorption using the as-synthesized nanosilica. The adsorption was simulated as an oil spill contamination, so the nanosilica could be effectively used in case of the oil spill if the adsorption capacity was high enough. The adsorption pointed out a potential capacity of 9.32 for the nanosilica. Many techniques were used for characterizations of the materials including XRD, SEM, TEM, EDX, FT-IR and other standard ASTM methods.

Keywords: Nanosilica, TEOS, adsorption, oil spill, condensation.
