



Utilization of recycled chemical residues from sodium hydrosulfite production in solid lubricant for drilling fluids

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ABSTRACT

The chemical residues from sodium hydrosulfite production contain complex chemical composition and give out a bad odor posing a grave threat to the environment and public health. The organic residues containing thiodiglycol, 2,2'-dithiodiethanol, and 1,4-thioxane are suitable for high pressure lubrication applications. In this paper, the chemical residues were recycled and used to prepare the solid lubricant for drilling fluids. The lubricity of solid lubricant was illustrated and the experimental results indicated that the solid lubricant could improve lubricity of drilling fluids, which had met the requirement of industrial applications. Experimental studies were also performed on its salt resistance, temperature resistance, and compatibility. The solid lubricant had passed pilot experiments and been used in the Changqing and Dagang oil fields in China. This study not only enables recycling of industrial products but also makes the clean production come true, which contributed to environment protection.

Keywords: Recycled chemical residues; Solid lubricant; Clean production; Lubricity; Drilling fluids

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