Influence of fluid type in the transition from spray to roping in hydrocyclones

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ABSTRACT

Water recovery in mineral processing operations has been proven that depends strongly on the performance of the classification equipments. Hydrocyclones are widely used as the main classification operations in the copper industry in Chile and their understanding is crucial for any effort in the optimization of water consumption. In this work, we perform an experimental study of roping in hydrocyclones[1,2] using as a base, a Bingham-type fluid, and another Pseudo-plastic that follows a power law[3]. In particular, the transition from spray to roping was analyzed based on the parameters that characterize the constitutive equations of the different fluids. A strong dependence was found between the hydrocyclone discharge angle and the fluid rheology for both types of fluids.

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