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In-site research on hyper-concentrated mud transported in pipes

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It is important to find the way to transport the hyper-concentrated effectively. The pipe mud resistance coefficient has been studied by the in-site experiment, selected typical silting-constructing engineering and device for mud piping. According to the measured data of pressure, discharge, concentration, etc., the resistance characteristic of hyper concentrated flow in the pipe has been analyzed. The relation between the resistance coefficient in rough transition region and Re. number, concentration, etc., has been pointed out. Further more, the relation between the resistance coefficient and synthesis sediment factor has been put forward, so as to the calculating method. Meanwhile, the local resistance of mud in the typical pipe has been analyzed, and the method for determining local resistance coefficient in mud transport pipe has been ascertained, taking the flow strength and sediment factor into account. The achievement can be used for hydraulic design and making quota for mud pipe constructing.

Key words: the hyper concentrated flow; the resistance coefficient; local shear stress; the synthesis sediment factor

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