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FLOW PATTERN SHIFTING AND DRAG REDUCTION IN OIL-WATER FLOW IN PIPE

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ABSTRACT

A major part of all chemical engineering process and operations is concerned with liquid-liquid two-phase flows where knowledge of the hydrodynamics is essential for its design and transportation through pipeline. The degree of drag reduction of oil-water flow in pipeline is presented in the present article. A model is developed to estimate and analyze the reduction capabilities of drag in the flow in the pipeline. The flow pattern shifting based on effect of drag reducing agent is also enunciated in the present work. From the present experimental results, as the drag reducing agent concentration increased percentage drag reduction is increased. The addition of 50-250 ppm of PEO causes about 18 t0 32% drag reduction at oil fraction of 0.30. The study may be useful for further understanding the flow behaviour of multiphase flow in pipeline in petroleum industry.

KEYWORDS: Hydrodynamics, Oil-Water Flow, Flow Pattern, Drag Reduction, DRA