

An experimental study of the effect of polymeric additives on n-dotriacontane crystallization in model waxy oil

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Wax deposition, precipitation, and gelation in pipelines cause many problems during production and transportation of crude oil. Wax is composed of n-paraffin crystals with 15–50 carbon atoms in the chain and its appearance is dependent of temperature, concentration of wax, type of oil media, etc. To control wax crystallization, several methods such as heating, insulation, pigging of transportation lines, and wax diluents are used. However, these control methods require capital cost for heating pipelines or operation cost for huge amount of diluents. In this study, some ethylene copolymer additives, which could act as kinetic inhibitors with a small dosage, were used to control the crystallization of model wax (n-dotriacontane) in decane solution. Their influence on wax appearance was determined by optical microscopy, differential scanning calorimetry, and rheometer techniques.