

Effect of ion/non-ion surfactants on asphaltene aggregation in Solvent De-Asphalting system

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Asphaltene is the heaviest and the highest polar fraction with complex structure in the petroleum. It is easily to aggregate by themselves with a change of temperature, pressure and oil composition so that it causes several problems in the transportation and refining of petroleum. In this respect, Solvent De-Asphalting (SDA) process is used for the selective separation of asphaltene from the oil with normal paraffin solvent. SDA is based on the characteristics of asphaltene self-aggregation but the mechanism of these phenomena is still unclear. In this study, the effect of ion/non-ion surfactants on asphaltene aggregation was compared with DBSA, oleic acid and Triton X - 102 as surfactants. And the behavior of asphaltene precipitation was observed with a function of solvent to oil ratio and temperature by scanning and transmission electron microscopy (SEM and TEM) and ζ -potential.