

EFFECT OF THE STRUCTURE OF COMMERCIAL POLY(ETHYLENE OXIDE-B-PROPYLENE OXIDE) DEMULSIFIER BASES ON THE DEMULSIFICATION OF WATER-IN-CRUDE OIL EMULSIONS: ELUCIDATION OF THE DEMULSIFICATION MECHANISM

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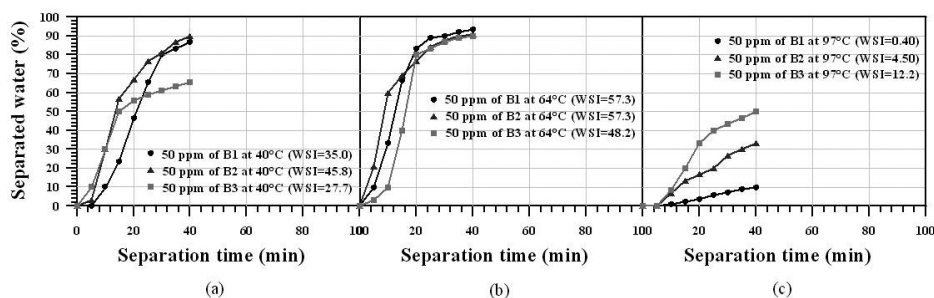


Figure 1S. Demulsifier base performance on demulsification of crude oil (a) P1, (b) P2 and (c) P3

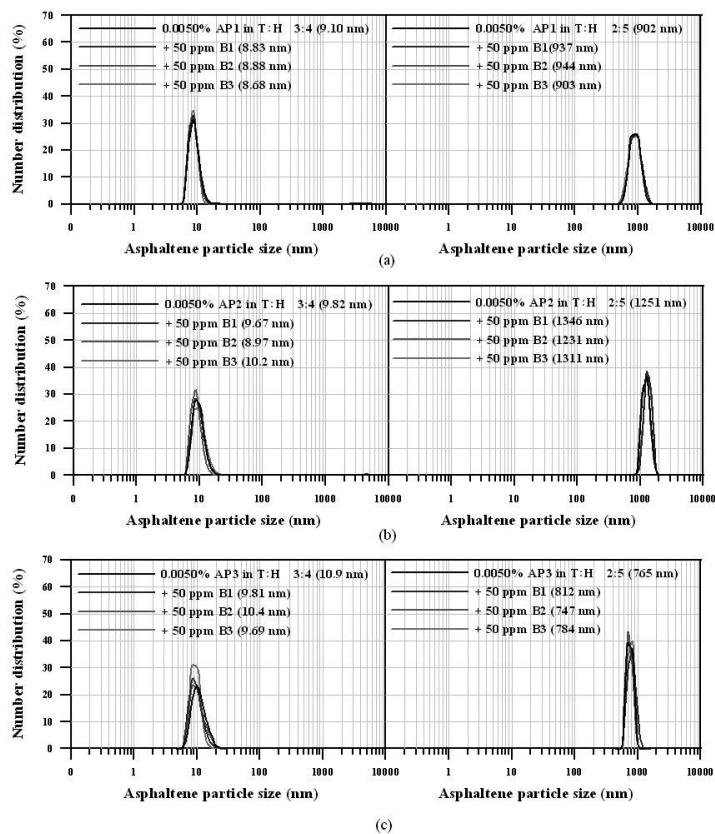


Figure 2S. Asphaltene aggregate size of (a) AP1, (b) AP2 and (c) AP3 with and without the addition of 50 ppm of active demulsifier base material, at different toluene/heptane ratios

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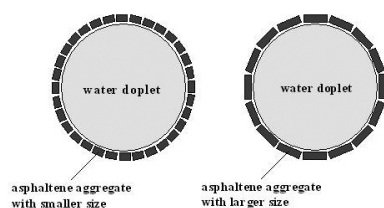


Figure 3S. Voids generated by asphaltene adsorption at the water droplet surface. More voids are generated from small-sized asphaltene aggregates

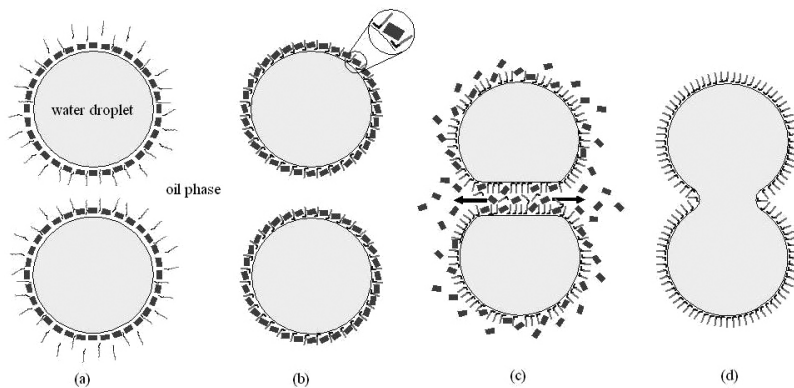


Figure 4S. The demulsification mechanism of the water-in-oil emulsions: (a) the demulsifier macromolecule crosses the voids between the asphaltene aggregates; (b) the demulsifier macromolecules start adsorbing at interface and counteracting the interaction between the asphaltene aggregates and the water molecules; (c) the asphaltene aggregates displace from the water droplet surface and the Maragoni-Gibbs effects are canceled out; (d) the water droplets coalesce