

## Removal of Calcium Naphthenate from Crude Oil using Three Phase Liquid Separation

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Comparing with light crude oil, opportunity crude contains many impurities such as naphthenic acid, calcium and sulfur. In opportunity crude, naphthenic acid and calcium exist in the form of calcium naphthenate which is deposited in separation equipment and it causes the pipe plugging and corrosion. Because of process cost, the price of opportunity crude is lower than price of light crude oil and processing technology for opportunity crude have not been developed in earnest. In this reason, development of purification process for calcium naphthenate is required for utilizing opportunity crude. Three phase liquid separation is configured by organic phase, polymer phase and aqueous phase and substances are separated by affinity. In this study, three phase liquid separation is applied for removing calcium naphthenate from crude oil. After the separation, the concentration of calcium naphthenate in crude oil is decreased and naphthenic acid and calcium ion are moved to polymer and aqueous phase, respectively.