

Catalytic decarboxylation of naphthenic acids in high acidic crude oil

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Rapidly increasing energy demand, high oil price and depletion of conventional crude oil resources attracts the attention of petroleum industry to upgrade the high acidic crude oil due to its lower price and greater availability. High acidic crude oil have high total acid number (TAN), which means that it contain more organic acids, especially naphthenic acids being the highest is responsible for corrosion problems in the upstream and downstream refinery processing units and has become a constant challenge for the petrochemical industry. So it is necessary to develop a process to reduce the total acid number of the high acidic crude oil to an acceptable label. In the present work, catalytic decarboxylation of naphthenic acid in high acidic crude oil was conducted using several catalysts to reduce the total acid number under effective reaction conditions having very low reactive gas pressure and Gas/Oil ratio. This process has advantage because of having long life and regeneratibility of the catalyst and can lower the total acid number (TAN) of the high acid crude oil from 2 mg KOH/g to less than 0.5 mg KOH/g which is an acceptable label to process for the refinery.