

Microwave Assisted Extractive Desulfurization of Gas Oil Feedstock

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Abstract : Sulfur compound removal from petroleum fractions is a critical component of environmental protection demands. Solvent extraction, oxidative desulfurization, or hydro-treatment techniques have traditionally been used as the removal processes. While all methods were capable of eliminating sulfur compounds at moderate rates, they had some limitations. A major problem with these routes is their high running expenses, which are caused by their prolonged operation times and high energy consumption. Therefore, new methods for removing sulfur are still necessary. In the current study, a simple assisted desulfurization system for gas oil fraction has been successfully developed using acetonitrile and methanol as a solvent under microwave irradiation. The key variables affecting sulfur removal have been studied, including microwave power, irradiation time, and solvent to gas oil volume ratio. At the conclusion of the research that is being presented, promising results have been found. The results show that a microwave-assisted extractive desulfurization method had remove sulfur with a high degree of efficiency under the suitable conditions.

Keywords : extractive desulfurization, microwave assisted extraction, petroleum fractions, acetonitrile and methanol

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