World Academy of Science, Engineering and Technology
International Journal of Chemical and Materials Engineering
Vol:8, No:07, 2014

Extractive Desulfurization of Atmospheric Gasoil with N,N-Dimethylformamide

Authors : Kahina Bedda, Boudjema Hamada

Abstract : Environmental regulations have been introduced in many countries around the world to reduce the sulfur content of diesel fuel to ultra low levels with the intention of lowering diesel engine's harmful exhaust emissions and improving air quality. Removal of sulfur containing compounds from diesel feedstocks to produce ultra low sulfur diesel fuel by extraction with selective solvents has received increasing attention in recent years. This is because the sulfur extraction technologies compared to the hydrotreating processes could reduce the cost of desulfurization substantially since they do not demand hydrogen, and are carried out at atmospheric pressure. In this work, the desulfurization of distillate gasoil by liquid-liquid extraction with N, N-dimethylformamide was investigated. This fraction was recovered from a mixture of Hassi Messaoud crude oils and Hassi R'Mel gas-condensate in Algiers refinery. The sulfur content of this cut is 281 ppm. Experiments were performed in six-stage with a ratio of solvent:feed equal to 3:1. The effect of the extraction temperature was investigated in the interval 30 ÷ 110°C. At 110°C the yield of refined gas oil was 82% and its sulfur content was 69 ppm.

Keywords : desulfurization, gasoil, N,N-dimethylformamide, sulfur content
Conference Title : ICACCE 2014 : International Conference on Applied Chemistry and Chemical Engineering
Conference Location : Paris, France
Conference Dates : July 21-22, 2014