

Activity of spent catalysts in the hydrodesulfurization of gas oil

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Abstrak

Activities of spent catalysts were examined in hydrodesulfurization (HDS) of gas oil at 340°C under 50 kg/cm² H₂. Two types of spent commercial catalyst (NiMo/Al₂O₃ dan CoMo/Al₂O₃) were used in single and two-stage of reaction configuration to show the inhibition effect of the by-product such as H₂S and NH₃. Hydrogen renewal between stages was attempted to show additional inhibition effects of the by-products such as H₂S and NH₃. Spent NiMo/Al₂O₃ dan CoMo/Al₂O₃ catalysts showed contrasting activities in HDS. HDS over spent CoMo/Al₂O₃ was much improved by H₂ refreshment.

The effect of two-stage hydrodesulfurization was markedly reduced over the spent NiMo/Al₂O₃. Spent catalysts apparently lost their activity due to the carbon deposition, which covered the active sites more preferentially.