

THE EFFECT OF SULFUR-PROMOTED RED MUD CATALYSTS ON HYDROLIQUEFACTION OF OIL SHALE

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Göynük oil shale was subjected to supercritical toluene extraction with/without catalyst. The catalysts used were red mud, sulfur-promoted red mud and commercial hydrogenation catalysts. The oils obtained were characterized by gas chromatography and column chromatography. Maximum conversion (~94 %) and extract yield (~64 %) were obtained at 400 °C. At this temperature, catalyst had no effect on conversion whereas it affected the extract yield. In addition, using of catalyst increased the amount of polar and aromatic compounds in the extract. Sulfur-promoted red mud showed the best reactivity to liquefaction of Göynük oil shale at 350 °C. Supercritical toluene extraction at 350 °C without catalyst resulted in a conversion of 34.8 %, but in the presence of sulfur-red mud it was 53–55 %.

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