

Characterization of CoMo-Al₂O₃ catalyst by combination technique of temperature-programmed sulfiding and electron spin resonance (TPS-ESR). Hayashi, Eiji; Iwamatsu, Eiji; Ahmed, Shakeel; Lee, Augustine K. K.; Hamid, Halim; Sanada, Yuzo; Yoneda, Toshikazu. Res. Inst., King Fahd Univ. Petroleum and Minerals, Dhahran, Saudi Arabia. Sekiyu Gakkaishi (1998), 41(3), 222-226. Publisher: Sekiyu Gakkai, CODEN: SKGSAE ISSN: 0582-4664. Journal written in English. CAN 128:296742 AN 1998:301862 CAPLUS (Copyright (C) 2008 ACS on SciFinder (R))

Abstract

Co-Mo-Al₂O₃ catalyst was characterized with a combination technique of temp.-programmed sulfiding (TPS) and ESR. The behavior of the MoO₃ loaded over the surface of Al₂O₃ obtained from TPS has been compared with that of Mo⁵⁺ obsd. with ESR at isothermal and elevated temps. The Mo⁶⁺ in the MoO₃ supported is easily reduced with H₂S + H₂ under very mild conditions and transformed into Mo⁵⁺ as an intermediate. This Mo⁵⁺ peak drastically decreased around 200°C with H₂S desorption, and H₂ consumption appeared simultaneously in the TPS profile. These results suggest that the Mo⁵⁺ species obsd. with ESR assoc. with sulfur from H₂S.