

A comparison between β - and USY-zeolite based hydrocracking catalysts. Hassan, A.; Ahmed, S.; Ali, M. A.; Hamid, H.; Inui, T. Research Institute, Center for Refining and Petrochemicals, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia. Applied Catalysis, A: General (2001), 220(1-2), 59-68. Publisher: Elsevier Science B.V., CODEN: ACAGE4 ISSN: 0926-860X. Journal written in English. CAN 136:72017 AN 2001:740314 CAPLUS (Copyright (C) 2008 ACS on SciFinder (R))

Abstract

Two series of zeolite-based hydrocracking catalysts were prepd. to study the effects of the support type, prepn. method and metal loading on catalyst properties and hydrocracking activity for hydrotreated vacuum gas oil (HT-VGO). The support used was γ -Al₂O₃ and β -zeolite in the first series and γ -Al₂O₃ and USY-zeolite in the second series. Nickel and tungsten were loaded as active metals on these supports. The prepd. catalysts were characterized as to their surface area, pore vol., thermal stability, reducibility and acidity characteristics. The characterization results revealed that catalysts displayed significant differences in properties dependent on the prepn. method and the type of support used. Catalysts from both series showed promising results for HT-VGO hydrocracking in the batch reactor. A correlation exists between the reducibility of oxidic form and the hydrogenation activity of the sulfided form of the catalysts. The higher the reducibility, the higher the hydrogenation activity. Catalysts prepd. on mixed supports gave higher amts. of sats.