

Barium modification of a high-silica zeolite for methanol conversion to light alkenes.

Abdillahi, M. M.¹; El-Nafaty, U. A.²; Al-Jarallah, A. M.².

1. Research Institute, King Fahd Univ. Pet. Miner., Dhahran, Saudi Arabia.

2. Department of Chemical Engineering, College of Engineering Science, King Fahd University of Petroleum and Minerals, Dhahran 31261, Saudi Arabia

Applied Catalysis, A: General (1992), 91(1), 1-12.

Abstract

High-silica zeolite (silicalite) was modified with Ba resulting in reduced acid strength of the catalyst and better performance when compared with ZSM-5 and fresh silicalite in converting MeOH to alkenes. Various concns. of Ba were ion-exchanged and impregnated to achieve the optimum loading of the modifier. The fresh and the modified zeolites were fully characterized by x-ray diffraction, SEM, TGA, DTA, as well as by surface area, chem. and other analyses. Ba silicalite has a lowered coke deposition and an improved active life when ion exchanged. The reverse was obsd. in the case of impregnation.