

Author(s): Bertolo, R (Bertolo, Raquel); Fernandes, A (Fernandes, Auguste); Ribeiro, F (Ribeiro, Filipa); Silva, JM (Silva, Joao M.); Martins, A (Martins, Angela); Ribeiro, FR (Ribeiro, Fernando Ramoa)

Title: Hydroisomerization of n-decane over SAPO-11 catalysts synthesized with methylamine as co-template

Source: Reaction Kinetics Mechanics and Catalysis, 99 (1): 183-191 FEB 2010

Language: English

Document Type: Article

Author Keywords: n-Decane hydroisomerization; SAPO-11; Acidity; Methylamine

KeyWords Plus: MOLECULAR-SIEVES; SI DISTRIBUTION; ACID CATALYSTS; HYDROGENATION; PERFORMANCE; TOLUENE

Abstract: The present work deals with preliminary studies concerning a new synthesis approach to prepare SAPO materials with AEL structure and evaluate their catalytic behavior in the hydroisomerization of long paraffins. The new SAPO-11 catalysts were synthesized with the help of a small amine (methylamine, MA) added during the preparation of the initial gel. As MA incorporates into the structure of the final materials, it contributes, together with DPA (dipropylamine), to an increase in Si incorporation as isolated species, which results in Bronsted acid sites. Thus, this new and original synthesis strategy allows to obtain materials with enhanced Bronsted acidity when compared with free MA materials. The catalysts were tested in n-decane hydroisomerization (n-decane was used as a model molecule) and confirmed the effect of MA on the acidic properties of the catalysts. The samples synthesized with MA present a higher number of acid sites that increase the catalytic conversion but have a negative effect in the isomerization selectivity, i.e. a more significant amount of cracking products is formed.

Addresses: [Fernandes, Auguste; Ribeiro, Filipa; Silva, Joa M.; Ribeiro, Fernando Ramoa] UTL, IBB, Inst Super Tecn, P-1049001 Lisbon, Portugal; [Bertolo, Raquel; Silva, Joao M.; Martins, Angela] ISEL, DEQ & CIEQB, P-1959007 Lisbon, Portugal

Reprint Address: Ribeiro, FR, UTL, IBB, Inst Super Tecn, Av Rovisco Pais, P-1049001 Lisbon, Portugal.

E-mail Address: ramoa.ribeiro@ist.utl.pt

Publisher: Springer

Publisher Address: VAN GODEWIJCKSTRAAT 30, 3311 GZ DORDRECHT, NETHERLANDS

ISSN: 1878-5190

DOI: 10.1007/s11144-009-0110-5

29-char Source Abbrev.: REACT KINET MECH CATAL

ISI Document Delivery No.: 594ZV