

P-28

ACTIVITY OF MATERIALS MICROPOROUS AND MESOPOROUS (M41S, SBA-15) IN THE FRIEDEL-CRAFTS ALKYLATION OF TOLUENE WITH BENZYL CHORIDE.

E. Losada, M.D. Gracia, J. M. Campelo, D. Luna, R. Luque, J. M. Marinas, A. A. Romero

Departamento de Química Orgánica, Universidad de Córdoba, Campus de Rabanales, Edificio Marie Curie (C-3), Ctra Nnal IV, Km 396, E-14014 Córdoba, Spain. Email- elialosada@hotmail.com.

Introduction

The zeolites (H-BEA-75, H-MOR-5) are solid crystalline microporous with a well defined structure. The high acidity of the exchanged with protons zeolites, it has been in use in numerous organic reactions, as well as in the synthesis of intermediates also in "Fine Chemicals" obtention¹. On the other hand, MCM-41 and SBA-15 materials, represent a new generation of solid mesopores. They have received a increasing scientific interest due to its narrow distribution of the pore size and its high superficial areas, volumes of pore, which makes them promising candidates for their utilization in the field of the heterogeneous catalysis^{2,3}. Likewise, the materials Al-, Ga-SBA-15 were been obtained using the procedure of synthesis described before for by our group of investigation⁴. In this work, the pore size distribution as well as the acidity of the above presented materials, was investigated in the Friedel-Crafts alkylation is of great interest for the production of pharmaceutical intermediates and "Fine Chemicals"⁵.

Experimental

The Friedel-Crafts alkylation was carried out by means of conventional heating. The experiments with conventional heating were realized in a reactor multipoint (Carrousel Reaction Station TM, Radleys Discovery Technologies). The reaction products were separated and analyzed using a gas chromatograph. The analysed were carried out to temperature programmed for the investigated reaction.

Conclusions

The mesoporous Ga-SBA-15, with a higher contribution of Lewis acid sites, were highly active and selective to monoalkylated products (2- and 4-methyl diphenylmethane) in the liquid-phase alkylation.

The zeolites, with size of minor pore that the mesoporous materials its present a high catalytic activity, in case of the H-BEA-75, for 30 min of reaction, to conversion is to 99.6 %.

Acknowledgements

The authors greatly acknowledge funds from Ministerio de Ciencia e Innovación (Projects CTQ2008-01330/BQU and CTQ2010-18126) and Junta de Andalucía (FQM-191 and P09-FQM-4781), cofinanced with FEDER funds.

¹ Catalysts for Fine Chemical Synthesis, Ed. E.G. Derouane, John Wiley and Sons Ltd., Chichester, **2006**.

² Clark J. H., Cullen S. R., Barlow S. J., Bastock T. W., J. Chem. Soc. Perkin Trans. **1994**, 1117.

³ Cao J., He N., Li C., Dong J., Xu Q., Mesopor. Mol. Sieves. **1998**, 117, 461.

⁴ Gracia M. J., Losada E., Luque R., Campelo J. M., Luna D., Marinas J. M., Romero A.A., *Appl. Catal. A.* **2008**, 349, 148.

⁵ Nakamura H., Kashiwara Y., Arata K., Bull. Chem. Soc. Jpn. **2003**, 76, 1071.