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# Esterification of Succinic Acid Using Sulfated Zirconia Supported on SBA-15

Catalytic esterification of succinic acid with ethanol to obtain diethyl succinate (DES), a nontoxic plasticizer, is reported. Three sulfated zirconias supported on SBA-15 [SZ-SBA-15(X)] with Si/Zr molar ratios (X) of 10, 20, and 30 were synthesized and characterized. $N_2$ adsorption/desorption isotherms and X-ray diffraction patterns evidenced preservation of the ordered mesoporous structure of the catalysts after incorporation of Zr. Yields of DES greater than 85 % were obtained at the final reaction time by using SZ-SBA-15(10) and SZ-SBA-15(20) catalysts, which were higher than those achieved with Amberlyst 36. Reuse of the SZ-SBA-15(20) catalyst showed that, even though the structure of the support was preserved, decreases in sulfur concentration and in the DES yield occurred.

Keywords: Bioplasticizer, Esterification, Heterogeneous catalysis, Nanostructured catalyst, Succinic acid

*Received:* February 05, 2020; *revised:* February 05, 2020; *accepted:* April 08, 2020

Supporting Information available online

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