Single-Flow System for Acid Hydrolysis and Base Condensation

Significance: Two types of SBA-15-based mesoporous silica bearing sulfonic acid groups (SBA-SO$_3$H) and amine groups (SBA-NH$_2$), respectively, were prepared according to equation 1. Acid hydrolysis of acetals and subsequent C–C bond-forming condensation (i.e., a Henry reaction and a Knoevenagel reaction) were achieved in a flow system using a single packed-bed reactor charged with SBA-SO$_3$H and SBA-NH$_2$ (eq. 2).

Comment: SBA-SO$_3$H and SBA-NH$_2$ were characterized by TEM, FT-IR, N$_2$ adsorption and desorption, BET, TGA, and TPD analyses. The authors also prepared a catalyst functionalized with both SO$_3$H and NH$_2$ groups, SBA-SO$_3$H/NH$_2$, but its catalytic activity was inferior to that of a physical mixture of SBA-SO$_3$H and SBA-NH$_2$. 

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