

Methanol-to-Olefin conversion over H-STA-7 and H-STA-14 SAPO molecular sieves

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The catalytic properties of cage-based, small-pore SAPO molecular sieves H-STA-7 (framework type SAV) and H-STA-14 (KFI) for the methanol-to-olefin conversion (MTO) at 350 °C are compared with those obtained from H-SAPO-34 (CHA), the most widely studied catalyst for this reaction. It was found that H-STA-7 shows comparable MTO activity and catalyst stability to SAPO-34, while H-STA-14 does not. The overall results of this study suggest that the uniformity in cage shape and size in small-pore molecular sieves is a critical factor governing the type of the accumulated aromatic hydrocarbon species, and hence their MTO activity and deactivation pattern.