

Effects of MoO₃ structure of Mo-Sn catalysts on dimethyl ether oxidation to methyl formate under mild conditions

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Catalyst characterization

NH₃ adsorption IR spectra

Diffuse reflectance infrared spectra were measured by a Bruker Tensor 27 with a MCT detector (64 scans, 4 cm⁻¹). The catalyst was placed in an in-situ IR cell equipped with KBr windows (Harrick). After heating at 673 K for 2 h and evacuating at 10⁻⁴ bar, the cell was cooled down to room temperature and the spectrum was recorded. Next, the NH₃ gas was introduced into the cell, and after the equilibrium the sample was degassed. Finally, the spectra were recorded at different temperature and the pressure of the cell was evacuated to 10⁻³ bar.

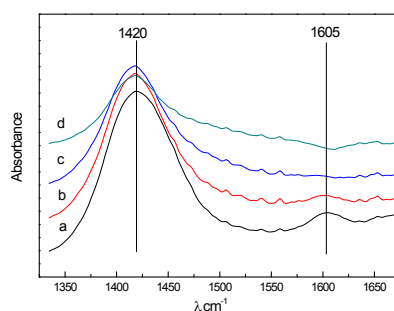


Fig.SI-1 NH₃-IR spectra of the MoSn catalyst at different temperature. a: 373K, b: 473K, c: 573K, d: 673K.