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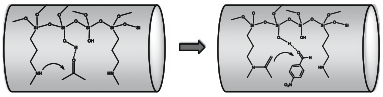
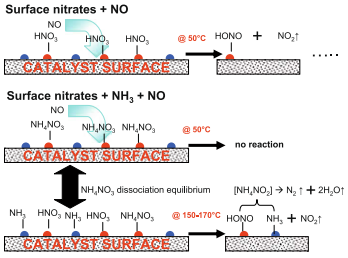
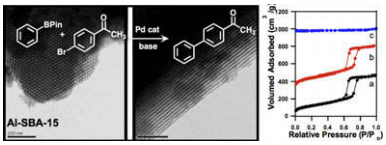
REGULAR ARTICLES



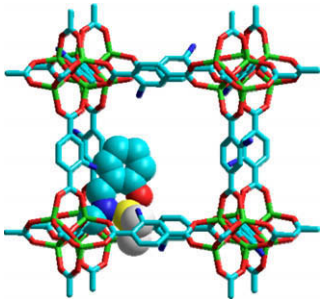
A highly efficient solid-base catalyst for aldol condensation reaction was synthesized by grafting site-isolated secondary amines onto the channel walls of mesoporous silica, MCM-41, in a polar-protic solvent.



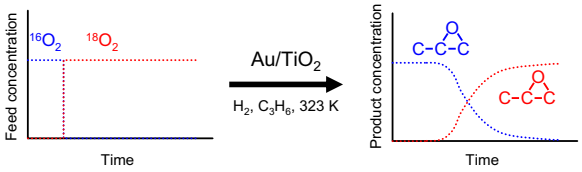
On a Fe-zeolite catalyst NO reduces nitrates at 50 °C, but this reactivity, critical for the Fast SCR mechanism, is blocked by NH_3 due to a strong ammonia–nitrates interaction.



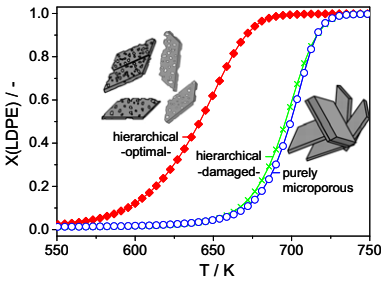
Base needed in the Suzuki–Miyaura reaction has a deleterious effect on mesoporous materials employed as supports. Boric acid produced during the reaction protects the material, as does pre-incorporated aluminum.



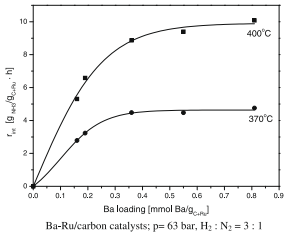
Open cationic Au^{III} species are created based on a post-synthesis strategy on IRMOF-3, which shows much higher catalytic performance in coupling and hydrogenation reactions in comparison with oxide-supported gold and homogeneous gold salt/complexes (Zn: green; O: red; C: light blue; N: deep blue; Au: yellow; Cl: white. H atoms are omitted). (For interpretation of the references to colour text, the reader is referred to the web version of this article.)



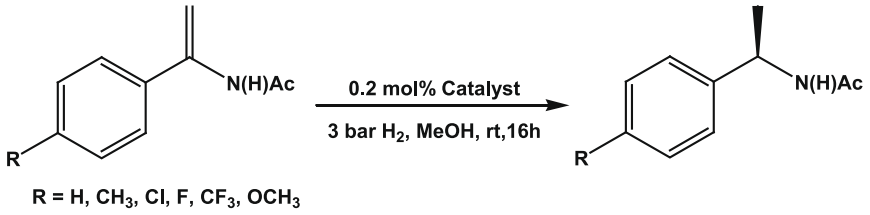
The epoxidation of propene over gold–titania catalysts was investigated using transient kinetic experiments with isotopically labeled oxygen to determine the role of support oxygen and the amounts of surface intermediate species.



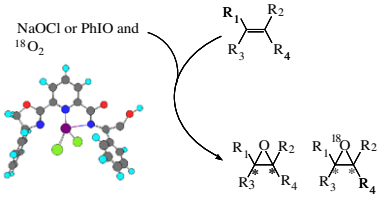
Desilication in NaOH is proven as a powerful method to create mesoporosity in ferrierite. The optimal hierarchical zeolite has improved catalytic performance in the pyrolysis of low-density polyethylene due to enhanced accessibility upon introduction of a secondary mesopore network and coupled to preserved intrinsic zeolite properties.



Barium-promoted ruthenium catalysts were studied in the ammonia synthesis: $N_2 + 3H_2 = 2NH_3$. Under steady-state ammonia synthesis conditions the surface of the catalysts is probably partly covered with Ba^0 + BaO.



Optically active α-1-arylalkylamine derivatives were successfully synthesized through heterogeneous asymmetric hydrogenation of α-arylenamides over immobilized RhBPE and RhDUPHOS complexes on aluminum-containing M41S and SBA-15 type materials with up to 99% e.e. at 99% conversion and >99% chemoselectivity.



Au(III) complex is able to epoxidize olefins with PhIO and bleach and O_2 enantioselectively at moderated rates and enantioselectivity. Oxygen from O_2 is incorporated in the epoxide as confirmed by ^{18}O isotopic studies.

ERRATUM