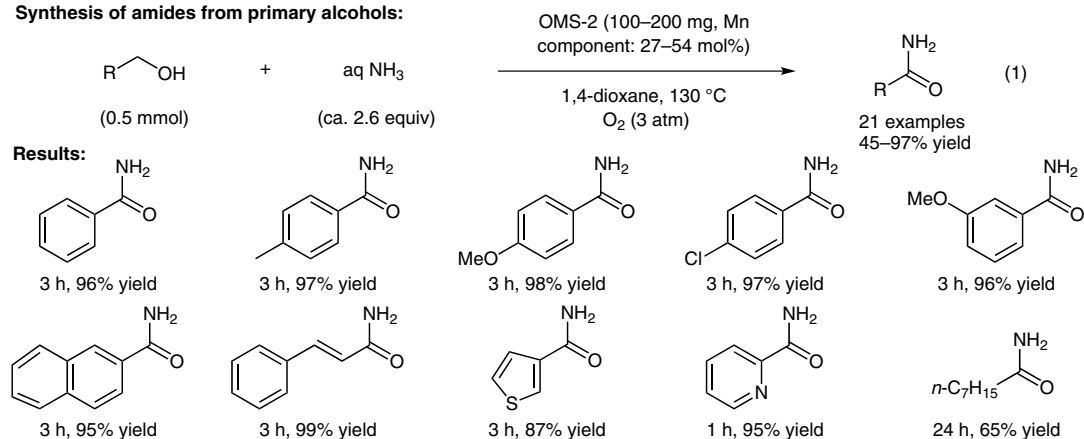
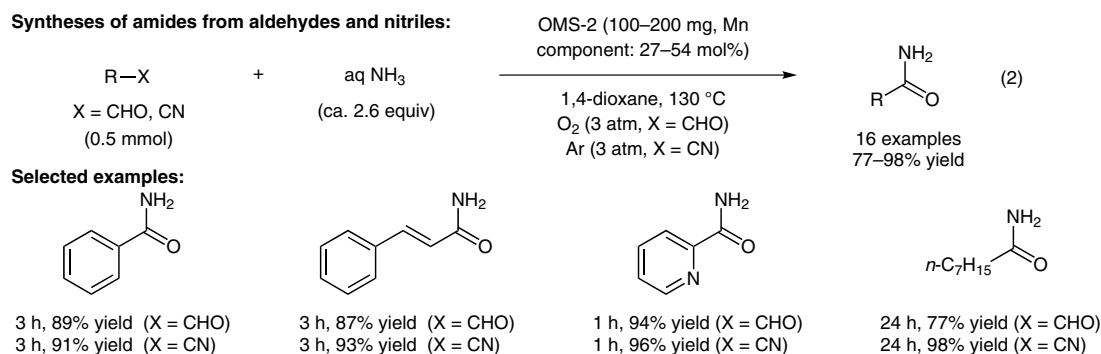


Synthesis of Primary Amines with OMS-2

Synthesis of amides from primary alcohols:



Syntheses of amides from aldehydes and nitriles:



Significance: Manganese oxide based octahedral molecular sieves (OMS-2) catalyzed the reaction of primary alcohols with aqueous ammonia to give the corresponding amides in 65–99% yield under molecular oxygen (10 examples, eq. 1). The reactions of aldehydes and nitriles with aqueous ammonia also proceeded in the presence of OMS-2 to give the corresponding amides in 77–98% yield (16 examples, eq. 2). In the formation of 2-pyridinecarboxamide from 2-pyridinemethanol, the catalyst was recovered by filtration and reused eleven times without significant loss of its catalytic activity (1st reuse: 93% yield, 11th reuse: 85% yield).

Comment: Suib and co-workers have previously reported the preparation of OMS-2 (*Chem. Mater.* **1994**, 6, 815). In the formation of benzamide from benzyl alcohol, the catalytic activity of OMS-2 was superior to that of precursors of OMS-2 (KMnO₄, MnSO₄·H₂O), other manganese-based oxides (MnO₂ and Mn₃O₄) and other metal oxides (Co₃O₄, CeO₂). After the reaction of benzyl alcohol with aqueous ammonia, no leaching of manganese species was observed by ICP-AES analysis.