

Mechanistic insights into the oxidative dehydrogenation of amines to nitriles in continuous flow - DTU Orbit (08/11/2017)

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The oxidative dehydrogenation of various aliphatic amines to their corresponding nitrile compounds using RuO₂/Al₂O₃ catalysts in air was successfully applied to a continuous flow reaction. Conversions of amines (up to >99%) and yields of nitriles (up to 77%) varied depending on reaction conditions and the amine utilised. The presence of water was found to be important for the activity and stability of the RuO₂/Al₂O₃ catalyst. The Hammett relationship and *in situ* infrared spectroscopy were applied to divulge details about the catalytic mechanism of the oxidative dehydrogenation of amines over RuO₂/Al₂O₃ catalysts.

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