

Ammonoxidation of *m*-xylene to isophthalonitrile over vanadia-titania composite aerogel catalysts

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Vanadia-titania composite aerogel catalysts synthesized by the sol-gel method and subsequent supercritical drying were tested in the ammonoxidation of *m*-xylene to isophthalonitrile (IPN). The vanadia-titania composite aerogels showed catalytically favorable properties such as high specific surface area, well developed mesoporous structure and nanosized particles. The corresponding composite xerogels and impregnated catalysts were prepared and compared. The reactions were carried out in the range of 100 °C– 450°C with gas hourly space velocity of 8,000–20,000 hr⁻¹. The maximum yields of IPN were normally obtained at 350–400°C. The aerogel catalysts exhibited the lower activity for ammonia oxidation and higher selectivities to IPN. The ratio of ammonia to oxygen was found to be a key factor to determine catalytic activity.