

Synthesis of vanadia-based aerogel/xerogel catalysts for propane ammoxidation to acrylonitrile

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Sol-gel derived vanadia-based catalysts were prepared by co-gelation methods, where either alkoxide or non-alkoxide method was applied. Catalytic performances of vanadia-based titania, niobia, alumina, and zirconia were evaluated on both aerogel and xerogel catalysts. Propane conversion reached 60% at maximum with yield of 20% acrylonitrile (ACN) over vanadia-alumina xerogel catalyst. The product ratio of acrylonitrile/acetonitrile indicated that vanadia-niobia favorably produced ACN while vanadia-titania exhibited the highest propane conversion and vanadia-alumina had maximum yield of ACN.