

## Vanadia-based aerogel catalysts for propane ammoxidation

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Vanadia-based aerogel catalysts were synthesized by sol-gel method with various techniques, such as co-gelation, pre-hydrolysis, soaking, and re-gelation methods, according to the gelation characteristics of support-acting materials. Binary composite aerogels with Ti, Si, Sn, Al, Zr, and Nb oxides were characterized by TG-DTA, N<sub>2</sub>-sorption, TPR, TPD, XRD, XPS, and Raman spectroscopy, and were tested for propane ammoxidation. For tertiary composite catalysts, effect of transition metal addition was also observed. The highest product yield was acquired over V-Al-Ox aerogels while selectivity to acrylonitrile vs. acetonitrile was much enhanced over V-Sn-Ox and V-Nb-Ox catalysts. Addition of Sb compound improved acrylonitrile selectivity as well.