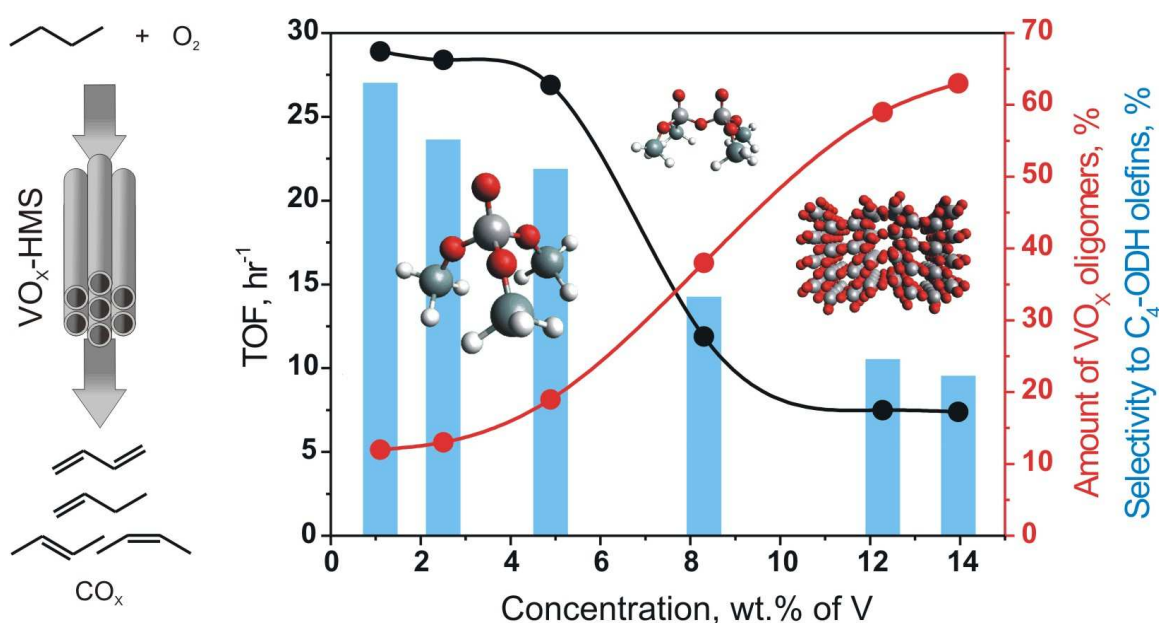


n-Butane oxidative dehydrogenation over VO_x-HMS catalysts

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J. Mol. Catal. A: Chem., 2011, 344 (1-2), pp 1-10

Editor's choice paper



Abstract: The demand for olefins increases in recent years. Oxidative dehydrogenation (ODH) of *n*-butane is possible alternative to classical dehydrogenation, steam cracking and fluid catalytic cracking processes. The role of particular VO_x species supported on hexagonal mesoporous silica (HMS) in oxidative dehydrogenation (ODH) of *n*-butane was investigated on two sets of VO_x-HMS catalysts prepared by wet impregnation and direct synthesis differing in amount and distribution of VO_x species. The materials were characterized by XRF, N₂-BET isotherms, XRD, SEM, H₂-TPR, O₂-TPO and DR UV-vis spectroscopy and tested in ODH of *n*-butane in the range of temperature from 460 to 540 °C. The highest activity and selectivity to olefins were reached on materials with high content of isolated monomeric VO_x units with tetrahedral coordination which are generated up to 4–5 wt.% of vanadium. The species with high degree of polymerization participate mainly on total oxidation reactions and those species are formed especially by wet impregnation.