
Dehydration of Glycerol over Supported Vanadium Substituted Phosphomolybdic Acid Catalysts

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Abstract

Vapour phase dehydration of glycerol to acrolein was carried out over vanadium substituted phosphomolybdic acid catalysts supported on ZrO₂, γ -Al₂O₃ and TiO₂. Among various catalysts examined for glycerol dehydration zirconia supported H₄PMo₁₁VO₄₀ catalysts have shown higher catalytic activity and excellent acrolein selectivity. The acrolein formation was strongly depends on the nature of support used. The higher catalytic selectivity exhibited by ZrO₂ supported H₄PMo₁₁VO₄₀ catalysts is due to its higher Bronsted acidity compared to other supports. The physico-chemical properties of the catalysts were investigated by various spectroscopic techniques such as X-ray diffraction, Laser Raman, FT-IR and scanning electron microscopy.

Keywords: vanadium substituted phosphomolybdic acid catalysts, *dehydration*, *glycerol*, *acrolein*