Abstract No. 7: High Catalytic Activity of Silicalite in Gas-Phase Ketonisation of Propionic Acid

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Amorphous silica and crystalline silicalite (MFI structure) are demonstrated to be active and environmentally benign catalysts for propionic acid ketonisation at 450-500oC to form 3-pentanone. The silicalite is particularly efficient, and its ketonisation selectivity is increased by a base modification probably through generation of silanol nests. The aim of this work to present that amorphous silica and silicalite are active in the reaction.

Abstract No. 19: Ketonisation of propionic acid over Zn-Cr oxide catalyst

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The aim of this work was to study multifunctional catalysis for the conversion of biomass-derived molecules to value-added chemicals and fuels in heterogeneous systems. As the catalyst, oxides compounds possessing acid-base properties were investigated in deoxygenation of carboxylic acids. ZnII-CrIII mixed oxide was found to be an efficient bifunctional catalyst for ketonisation of propionic acid to form 3-pentanone in the gas phase in continuous flow fixed bed reactor at 350-450oC. Different catalysts with different atomic ratio of zinc and chromium (Zn/Cr = 1:1, 1:6, 10:1, 20:1 and 30:1) as well as ZnO and Cr2O3 were prepared by co-precipitation of ZnII and CrIII hydroxides. Catalysts under study were characterised by a number of physical and chemical techniques such as TGA (water content), BET (surface area and porosity) and XRD (crystallinity). The nature of catalyst acidity was characterised by using FTIR spectroscopy of adsorbed pyridine. The acid strength of catalysts was measured by deferential scanning calorimetry of ammonia adsorption in the gas-solid system. Amongst Zn-Cr oxides studied Zn-Cr (10:1) showed the best results catalyst comparing with others oxides, so we supported this catalyst using alumina, titania and silica by precipitataion method and impregnation as well. 20% Zn:Cr (10:1) / TiO2 impregnation was the best catalysts. It gave 99% conversion of propionic acid with 97% 3-pentanone selectivity at 380oC. This catalyst showed stable performance for 24 h without deactivation.

Abstract No. 36: Tracking Human Actions in Video Stream

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The present paper deals with the issue of action recognition in real-life videos. Most of the previous studies in this field were based on space-time interest points, whereas more spatially extended features, such as regions, have received considerably less attention. This is due to the fact that the motion flow information pertaining to a particular region must be subject to temporal collation. This study addresses the matter by applying a sturdy region tracking method. Based on the assumption that a frame consists of an individual as the principal actor and, as such, his/her body regions constitute the regions of interest, a cutting-edge human detection method is applied to generate a model incorporating generic object