Characterization the High Dispersion Molybdenum Oxide on Silica surface Using XRD Technique

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Abstract: The X-ray powder diffraction method is thus ideally suited for characterization and identification of polycrystalline phases. The main use of powder diffraction is to identify components in a sample by a search/match procedure. Silica (SiO_2) supported molybena (MoO_3) catalysts at loading varying between 3 and 6 wt% were prepared by impregnating support silica (SiO_2) with an aqueous solution at different acidity levels (pH = 2, 4 and 6) of ammonium hepta molybdate. After stirring for 3 h, the excess water was slowly evaporated at 100°C. Moreover, the impregnated supports were further dried at 120°C for 24 h. The products thus obtained were calcined at 700 °C for 2 h in static atmosphere of air. X-ray powder diffractogram (XRD) for support (SiO_2), supported (MoO_3) and different loading levels (3, 4, 5 and 6 wt% MoO_3/SiO_2) catalysts at different PH`s were investigated. The results clearly revealed that the formation of highly dispersed MoO_3 phase on the SiO_2 surface at a loading levels of 3 wt%, at pH = 2, for 4 wt%, at pH = 4 and 5 wt%, at pH = 6. This indicts that, a weaker dispersion of MoO_3 on SiO_2 surface at low pH. Given that, at low pH = 2 the formation of MoO_3 phase crystallites was observed at 2 wt%. Whereas, at high pH = 6 the form of MoO_3 crystallites was observed at 6 wt%. These results can be reorganized on the basis of the different surface chemical properties of the oxide support and nature of oxide supported.

Keywords: *Dispersion, SiO_2, MoO_3, pH, XRD.*

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