SYNTHESIS OF CoMo SULFIDE CATALYSTS SUPPORTED BY CARBON NANOTUBES

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Worldwide concerns for preservation of the environment has motivated the development of more active catalyst based technologies, to achieve a better utilization of petroleum resources and demands for cleaner transportation fuels. These environmental concerns have led to increasingly drastic regulations on sulfur, nitrogen and aromatics content in fuels. Nowadays, carbon nanotubes (CNT) supported catalysts have been widely studied because they hold unique mechanical and electronic properties and excellent electron-transporting capabilities which make them suitable for catalyst support. In the current work a new family of supported transition metal sulfide catalysts is presented with volumetric efficiencies significantly greater than current commercial catalysts, two different synthesis techniques were used to prepare these two catalysts, thermal decomposition and hydrothermal activation at high pressure. CNT as a support in transition metal sulfides performed very different depending on the method of synthesis employed; when the hydrothermal method was used, the hydrogenation was dramatically increased and the catalytic activity in hds was much higher compared to thermal decomposition. XRD, SEM, TEM techniques were adopted to characterize these CNT catalysts.

KEYWORDS: Bimetallic precursors; Hydrothermal activation; Hydrodesulphurization; $CoMoS_2$ catalysts; Carbon Nanotubes.

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