Synthesis strategies for Co promoted MoS_2 model hydrodesulfurization catalysts

M. K. Prabhu*, M. Stam*, A. V. van Vark**, C. Koskamp*, B. Hagedoorn*, I.M.N. Groot*

*Leiden Institute of Chemistry, Gorlaeus Laboratories, Leiden University, Einsteinweg 55, 2333 CC Leiden, The Netherlands
**Huygens-Kamerlingh Onnes Laboratory, Leiden University, Niels Bohrweg 2, 2333 CA Leiden, The Netherlands

Email : m.k.prabhu@lic.leidenuniv.nl; i.m.n.groot@lic.leidenuniv.nl

Due to the need for sustainable living and protection of environment from the adverse effects of global warming, the tolerance standards for sulfur in gasoline have decreased drastically over the last decade. This has led to an emerging need for a better catalyst to perform hydrodesulfurization (HDS). The contemporary catalyst in the form of Co- and Ni-promoted MoS_2 supported on various oxides has low activity for ultra-deep HDS and is not completely understood at the atomic level so that smart engineering of a more efficient catalyst may be envisaged. Surface science techniques like scanning tunnelling microscopy (STM) have given valuable insights into the nature of active sites in the form of their location and morphology[3]. For this purpose, Au-supported MoS_2 model catalyst with and without promoter has been studied in detail. Observation of HDS operando remains as the next major step in this process of smart catalyst design. This mandates a model catalyst that satisfactorily represents industrial catalysts[1][2]. In this poster, we present the various synthesis strategies to obtain a suitable HDS model catalyst.

References:
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