

Abstract Submitted
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New insides in the characterization of HDS industrial catalysts by HAADF-STEM PAZ DEL ANGEL, ARTURO PONCE, JOSEFINA ARELLANO, MIGUEL J. YACAMAN, Universidad of Texas, San Antonio, MARTHA HERNANDEZ-PICHARDO, Instituto Politecnico Nacional, J. ASCENCION MONTOYA, JOSE ESCOBAR, Instituto Mexicano del Petroleo — Hydrodesulfurization (HDS) catalysts are of great importance in the petroleum industry. Transition metal sulphides catalysts of Ni(Co)Mo(W)/Al₂O₃ are widely used for hydrotreating reactions, like hydrodenitrogenation and HDS. One of the main issue in these catalysts is to understand the mechanism of the reaction, where MoS₂ plays the most important role in the catalytic activity. We studied an industrial NiMo/Alumina sulfide catalyst highly active by using aberration-corrected HAADF-STEM techniques. The used catalysts was a state-of- the art commercial nickel-molybdenum alumina-supported formulation, including organic agent modifier. This type of material belongs to a novel family of catalysts specially designed for ultra-low sulfur production from straight-run gas oil (SRGO), cycle oil, coker gas oil, or their combinations at operating conditions of commercial interest in hydrotreating units at industrial scale. Aberration corrected HAADF-STEM allowed to observe the nanostructure and location of MoS₂ and his interaction with the alumina. The results indicate that the MoS₂ is highly dispersed on the alumina, however the location of Ni is one of the task of this kind of catalyst.

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