HDT PROCESS PERFORMANCE OVER NOBLE METAL- MESOPOROUS CATALYSTS

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The greater concentration of market demand in the diesel range forces refiners to consider redirecting internal refinery cuts to new hydrocracking units to increase the contribution to the gasoline and diesel pool. These requirements drive advances particularly in hydrotreating technologies (HDT). The need to reduce the level of sulfur and polyaromatics in diesel fuel to values ??of a few ppm and the need to process heavy cuts with a high degree of aromaticity has motivated the appearance of new, more efficient processes. In recent years, bimetallic catalysts have received much attention, since they can combine two or more functions. The functionality of a catalyst can be due to active sites generated by supported metals and the interaction with the support. Pt- Pd catalysts have been extensively studied in order to improve tolerance to sulfur and other contaminants. They showed higher activity, stability and resistance to poisons compared to monometallic Pt or Pd catalysts. In bimetallic catalysts, the formation of the alloy creates electron-deficient species, more resistant to poisoning, in the case of Pd, which alone or alloyed with Pt, has a high hydrogenating and thio- resistant capacity and has begun to be used in industrial dearomatization units.

The objective of this work is to evaluate the activity of all the synthesized catalysts in typical catalytic hydrotreating reactions. Performing first a kinetic study in a Batch reactor to the best catalysts that will then be tested in a continuous flow reactor in operating conditions close to industrial ones. With this objective, catalysts supported on SBA- 16 were synthesized. This mesoporous has a high surface area and good characteristics of thermal stability, against the conditions set. The support was modified by incorporating Al indirectly and then impregnated with Ir, Pt and Pd. The behavior of the synthesized catalysts was studied against a commercially used catalyst and another support widely used in the industry, such as alumina. The catalysts were characterized by XRD, FTIR, NMR, TPR and N_2 adsorption- desorption isotherms.

Keywords: HDT, mesoporous, Pt- Pd

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