

## NEW EFFICIENT SYNTHESSES OF NANOSTRUCTURED MESOPOROUS CATALYSTS TO BE APPLIED TO CATALYTIC HYDROTREATMENT.

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The presence of polyaromatic and cyclic compounds in diesel has a negative effect on the environment and reduces the quality of diesel, in addition to lowering the cetane number, which indicates its ease of ignition. Hydrotreating is one of the most efficient methods for the removal of N and S from refinery streams, as well as for the saturation of alkenes and aromatics. [1–4].

Mesoporous silica materials are synthesized by synergistic self-assembly between surfactant and silica species to form composites. [5,6].

Tetraethylorthosilicate (TEOS) is generally used as a source of Si, which is very efficient, but has a high cost. Another important variable in the search for catalysts that can be thought of to be replicated on an industrial scale is the synthesis time.

In the present work, catalysts with alternative sources of Si were developed with the aim of reducing the cost of the synthesis of mesoporous supports. Modifications in the synthesis steps were also established to reduce the synthesis times.

A series of syntheses of SBA-15 were carried out using silica gel and sodium silicate as an Si source, as an alternative to Tetraethylorthosilicate. Syntheses were also generated by varying the aging stages, with the use of a self-generated pressure Teflon reactor, trying to reduce the synthesis times. These mesoporous supports were modified with Al and impregnated with Ir, Pt and Pd. The catalysts were characterized by XRD, FTIR, NMR, TPR and N<sub>2</sub> adsorption-desorption isotherms.

The catalytic activity was measured in a 4563Parr reactor, at 250°C, 15 atm of pressure of hydrogen and 360 rpm for tetralin hydrogenation (feed consisted in 50 mL of 5% v/v of tetralin (98.5% FLUKA) in Dodecane).

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