

New catalyst removes sulfur from crude oil

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The reduction of sulfur in the manufacture of gasoline and diesel generates large amounts of greenhouse gases, so specialists from the National Polytechnic Institute (IPN) in Mexico created an innovative catalytic material that removes this element, and its production requires only one day, representing an advantage in time and cost.

The material consists of a catalyst composed of a [transition metal](#) called molybdenum, which removes [sulfur](#) in gasoline or diesel during hydrodesulfurization, which is the second stage of the distillation of petroleum, said Dr. Jose Domingo Cuesta Leal from the Center of Applied Scientific Research and Advanced Technology (CICATA).

The innovation lies in a one-step synthesis methodology by which it is possible to obtain a catalyst with better qualities than current commercial products.

Cuesta Leal explained that a hydrothermal reaction was used for the synthesis of the product. Its effect on a load of gas was evaluated after the amount of sulfur in the sample was measured and a reduction of 80 percent was obtained.

Additionally, in comparison with a commercial material under the same conditions, the one created at CICATA demonstrated better properties. The project can be adapted to any desired conditions, either as a compacted powder or small aggregates called pellets. This is the result of six years of research, time during which Dr. Cuesta Leal earned his master's and doctorate financed by the Mexican Council for Science and Technology (Conacyt).

He adds that the sulfur removal benefits the oil refining process, avoiding corrosion and contamination by other catalysts such as platinum.

Provided by Investigación y Desarrollo

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