

# "NO-NOBLE-METAL" CATALYTIC TRAP TO REMOVE HYDROCARBONS, NOX AND CO EMISSIONS FROM COMBUSTION ENGINES

**P** PATENTED TECHNOLOGY



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## ABSTRACT

A Spanish research group has developed a new non-noble metal-based catalyst to remove the emission of hydrocarbons (HC) in internal combustion engines. A patent for this technology has been applied for. The material, which has been developed at laboratory scale, can act as a HC trap and as an oxidation catalyst during the whole cold start cycle of the engine.

Researchers are looking for partners to license the technology. They are also open to establish further joint development projects.

## TECHNOLOGY ADVANTAGES AND INNOVATIVE ASPECTS

### MAIN ADVANTAGES OF THE TECHNOLOGY

The most important advantages in comparison to other catalytic systems are:

- Noble metals are not used.
- Structural advantages, since the control systems are simplified and pollutants in internal combustion engines are reduced.
- Economic benefits (The price of noble metal is approximately 100 times more expensive than the materials employed by the researchers).
- The catalytic trap can be placed in any position with regard to different control systems.
- Besides its hydrocarbon trapping role, the system can also act as oxidation catalyst during the cold-start cycle.

At high temperatures, this material is able to carry out total oxidation of both hydrocarbons retained by the catalytic trap and those present in the exhaust gas stream. Consequently, the resulting gas stream released to the atmosphere is innocuous in hydrocarbons.

### INNOVATIVE ASPECTS

The main innovative aspect of this catalytic trap is that the adsorbent material can capture the hydrocarbons in the cold start of the engine and oxidize gases during its warmed-up operating conditions without using noble metals, which are frequently used as oxidation catalyst.

## MARKET APPLICATIONS

Application sectors for these materials are those related to hydrocarbons emissions, mainly. In this case, mechanical sector and automotive industries are the most immediate, since the internal combustion engines generate these hydrocarbon emission in cold.

Other potential domains of application are:

- Power and electricity generation.
- Industrial (Chemical industries, ceramics, polymers, paints, etc.)
- Chemistry and materials (Materials and catalysts producers)

## COLLABORATION SOUGHT

The research group is looking for companies interested in acquiring this technology for its commercial exploitation.

- Type of partner sought: Private companies/Public organizations
  - Specific area of activity of the partner: Mechanical engineering; automotive; catalyst manufacturers; power and electricity generation; chemical; ceramics; polymers; paints; etc.
  - Cooperation Sought: Licensing the developed and patented technology to introduce it in the market. The researchers are also open to establish further joint development projects in order to initiate new researches or to implement novel technology developments.
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