

# CATALYST FOR NITROGEN OXIDES (NOX) REDUCTION IN DIESEL ENGINE EXHAUSTS

**P** PATENTED TECHNOLOGY

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## CONTACT DETAILS:

Research Results Transfer Office-OTRI  
University of Alicante  
Tel.: +34 96 590 99 59  
Email: [areaempresas@ua.es](mailto:areaempresas@ua.es)  
<http://innoua.ua.es>

## ABSTRACT

The research team "Carbon materials and environment" at the Department of Inorganic Chemistry at University of Alicante has synthesised a noble metal-free catalyst for nitrogen oxides (NOx) storage and reduction (NSR catalyst). The catalyst developed consists of a copper-doped mixed oxide with perovskite structure.

Its major application is the removal of NOx gas in oxygen-enriched streams such as the exhaust gases emitted by diesel engines.

## ADVANTAGES AND INNOVATIVE ASPECTS

The advantages of this new catalyst formulation are:

- Capability for operating under typical NSR conditions, where the treated gas composition periodically alternates between oxidising and reducing conditions.
- Higher NOx storage capacity per surface area unit (and comparable capacity in mass basis) than conventional noble metal-containing systems.
- Lower cost of the materials in comparison to noble metal-containing formulations.

## INNOVATIVE ASPECTS

The main innovative aspect of this approach is that the synthesised material is able to remove NOx in a similar way than noble metal-containing catalysts (the most effective nowadays) but lowering the price of the materials.

## MARKET APPLICATIONS

This technology is useful for the storage and reduction of nitrogen oxides (NOx) in oxygen-rich gas streams. Specifically, it can be employed in the purification process of exhaust gases in diesel engines.

## COLLABORATION SOUGHT

The research group is looking for automotive industries interested in acquiring the technology for its commercial exploitation. The researchers are also interested in testing a prototype in real conditions, so they are also opened to collaborations for carrying out the scaling-up process.