

CATALYST FOR NITROGEN OXIDES (NO_x) REDUCTION IN DIESEL ENGINE EXHAUSTS

P PATENTED TECHNOLOGY



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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 (NO_x) 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 NO_x 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 NO_x 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 NO_x 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 (NO_x) 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.