

COMBINING SULFUR SORBATE CATALYSTS WITH NO_x SORBATE CATALYSTS TO EXTEND LONGEVITY

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NO_x sorbate, or "trap", catalysts have achieved >90% reduction of NO_x from lean exhaust streams over a broad range of temperatures. Since diesel can be used as the reductant for NO_x sorbate catalysts, the sorbate catalyst technology offers great potential for NO_x control in a broad range of mobile diesel applications. Traditionally, the longevity of NO_x sorbate catalysts in diesel exhaust applications has been limited by sulfur poisoning of NO_x sorption sites. To reduce the rate of sulfur poisoning of NO_x sorbate catalysts, sulfur sorbate catalysts have been used to remove SO₂ from the diesel exhaust upstream of the

NO_x catalyst. Furthermore, by combining SO₂ and NO_x sorbate catalyst components on a single monolith, the SO₂ and NO_x sorption sites become close-coupled which enables reduction of sulfur-poisoned NO_x sites. A combination of sulfur and NO_x sorbate catalysts has been tested on diesel engine exhaust to determine the sulfur catalyst's effect on the NO_x catalyst's longevity. Data obtained with No. 2 Diesel fuel and a steady-state modal operation cycle will be presented. The effect of temperature on sulfur control and thereby longevity will be discussed.