LEAN-NO_X CATALYST DEVELOPMENT FOR DIESEL ENGINE APPLICATIONS

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Because of the inherently low hydrocarbon concentration in diesel exhaust, any NO_x reduction catalyst requires the addition of supplemental reductant to reduce NO_x. From a diesel engine user's standpoint, the best reductant to use in conjunction with aftertreatment systems is diesel fuel. However, the natural form of diesel fuel is not an ideal reductant to reduce NO_x over various catalysts.

Reformation of diesel fuel to create feasible reductant has been considered to improve NO_x reduction performance. In this study, catalyst materials demonstrated hydrocarbon reformation as well as NO_x reduction on the catalyst surface. The reformation active sites were identified independently from NO_x reduction sites in the catalyst formulation.

The research and development of catalysts suitable for lean-NO_x or non-thermal plasma applications to optimize NO_x reduction will be discussed.