

LOW-TEMPERATURE REGENERATION OF A NO_x ADSORBER SYSTEM

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Extensive testing of NO_x adsorbers has shown that the NO_x reduction efficiency in these systems is limited at the lower temperatures (below 200°C). Both vaporization of the reductant and the kinetics of the reduction reactions are strongly influenced by temperature. More active reductants than diesel may extend the low-temperature limit of the NO_x adsorber operation. Wide range of reductants (hydrogen, carbon monoxide, alkanes, and alkenes) has been tested on a reactor to measure their ability to reduce NO_x over NO_x adsorbers as a function of temperature. Attempts are underway to validate the reactor results on an actual engine using a reforming unit. The reforming unit will convert diesel into the desired reductant for low-temperature operation of NO_x adsorbers. The fuel penalty for this operation has been calculated analytically and will be validated using data from this testing. The aim of this paper is to share some of these results.