

Three-way catalysts – innovation within a mature technology

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Abstract

The Three-way catalyst (TWCs) is the main tool available to abate gasoline engine exhausts to allow internal combustion engined vehicles to be compliant to national and regional emission legislation. TWCs are a mature technology first implemented in the 1980s which already show high conversions of the three main pollutants present in gasoline exhausts: i.e. CO, unburnt HCs and NO_x. However new legislation will demand further reductions in exhaust emissions in the mid 2020s, therefore further improvements in catalyst performance are required.

The talk will highlight some recent research from Johnson Matthey in the areas where further catalyst improvements are necessary.

The three areas of research that will be covered are:

- i) Low-light off (cold start) activity
- ii) Higher oxygen storage function for transient activity
- iii) Improved understanding of catalyst deactivation following high temperature ageing