

What happens to NOx emissions of VW Diesel cars when water/methanol injection is used?

Volkswagen has come under fire for their "Clean Diesel" automobiles that were found to emit too much NOx (Oxides of Nitrogen) when driven on the street. This infraction of emissions regulations affects around 500,000 diesel Volkswagen vehicles. The judge ruling on this case has ruled to give Volkswagen three options to rectify the emissions infraction:

Option 1- To export the vehicles to a non-emissions country

Option 2- To recycle the vehicles

Option 3- To retrofit the emissions system so the NOx that is in excess of the regulations can be catalyzed in the exhaust after-treatment system

Since VW is under fire for a situation relating to air pollution, the first two options listed are less than ideal for VW from a public relations standpoint.

The third option, to retrofit the emissions system, could very well be the fix required to salvage the vehicles and recover from the situation.

Some have considered de-tuning the power of these engines to meet the emission requirements but, the customer also has requirements so the car's drivability must be maintained. NOx emissions must be reduced but without losing engine power.

VW has acknowledged that the fix for these cars will require more than just a software change. It will require additional hardware to get the vehicles in spec. This is where the catalyst engineers may have overlooked something very simple. For a catalyst engineer, the fix for more emissions will always be more and bigger catalysts. However, a technology that is over one hundred years old can be used to prevent some NOx from being created to begin with. Less NOx created equals less NOx that must be dealt with in the after-treatment system.

Since NOx is created by high temperature combustion events, the addition of a water/methanol injection system was tested on a VW diesel vehicle to identify if it could cool combustion temperatures and thus reduce NOx to an acceptable specification.