

Survey of Retrofit System Suppliers: THC Emissions & CH₄



presented at:

Informal Group on Gaseous Fuelled Vehicles

2 October 2012

United Nations

Geneva

by:

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BACKGROUND

- In September 2011 the European Commission sought to amend Euro 6 legislation by aligning the hydrocarbon (HC) requirements of the Light Duty Regulation 715/2007 with the NMHC requirements contained in the Heavy Duty Regulation 595/2009.
- DG Enterprise requested the Informal Group on Gaseous Fuelled Vehicles (GFV) to develop an industry proposal laying out possible amendment options and a THC emission limit value.
- This value should not create barriers for CNG vehicles and should be applicable for both new and retrofit vehicles so that there no longer are 'special rules' for retrofit systems (as reflected in differences between European type approval rules and UN Regulation 115.)



BACKGROUND (con't)

- The GFV developed a position paper, *“Input for a revision of the THC and methane (CH₄) emission limits for vehicles equipped with engines running on natural gas”*
- In order to determine reasonable THC and/or methane limit value, NGV Global surveyed retrofit system suppliers. This was done at the NGVA Europe conference in Bologna in June 2012.



INFORMATION REQUESTED FROM NGV CONVERSION SYSTEM SUPPLIERS

- What THC level can be achieved 'comfortably' without the use of a methane catalyst?
- What is the cost of a methane catalyst?
- Confidentiality for all suppliers was guaranteed.



7 Retrofit suppliers were asked for data; 5 responded; 4 provided information & comments

- Alternative Fuel Vehicle (QVM to Volvo)
- BRC (GFI Alternative Fuel Systems)
- Emmegas (Alternative Fuel Solutions)
- Emer (by Westport LD)
- Landi Renzo
- Tartarini
- Zavoli (linked to BRC)



Responses

- One company indicated that they are achieving the current THC limit without a methane catalyst but for Euro 6 cars a catalyst will be needed.
- Another indicated achieving 100 mg/km THC would be '*very tight*' and likely not achievable (without a methane catalyst)
- This company said 130 mg would be 'more comfortable' but 150 mg THC would be more likely to be achieved.
- A third company also indicated that 150 mg THC would be 'safe' but that some vehicles of one particular OEM could not achieve this level.



Various vendors have provided cost of CH4 catalysts although these are without formal documentation

- €160-200 without surrounding 'canning'* (or about twice gasoline catalysts)
- Company doing QVM for Volvo indicates €400 for their CH4 cats
- One large conversion company indicated CH4 cats can 'be as much as €1,000'

*Private communication with Swiss Federal Laboratories for Materials Science and Technology (EMPA,) Switzerland, 17 May 2012





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