Annexure – 1

# Emission Controls Manufacturers Association (ECMA India)

**MINUTES of the ECMA ROUND TABLE MEETING**

BS6 Particle Filter Technology – an effective Sustainable air filter to clean the surrounding Ambient Air

*Magnolia Hall, India Habitat Centre, New Delhi*
*28th August 2024 (1100 hr – 1300 hr)*

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1.0 The meeting started by Mr Prakash Sardesai with a welcome and giving introduction and purpose of the round table meeting. The primary objectives of the Round Table discussions were also mentioned by him.

2.0 The presentation, given by Mr Neelkanth Marathe of ECMA and Mr Manoj More of ARAI, about the study project done on a BS6, OBD-I, Diesel SUV reveals that –

- PM and PN emissions at the vehicle tail-pipe have been more or less constant and well below BS6 legislative limits with varying AQI PM2.5 levels at the Vehicle inlet, and demonstrated this trend at both laboratory level CD tests as per MIDC and during on-road tests comprising of city-road tests in morning and afternoon time and also during RDE tests as per certification procedure.
- There looks to be a promising opportunity for particle filters to achieve near-zero ultra-low level PM and PN emissions at the vehicle tail-pipe, be it used in any category of vehicle such as LMV, LCV, MCV, HCV, off-road, stationary power generation etc, using any type of fuel such as diesel, gasoline, CNG, etc
- Modern BS6 and beyond diesel engines equipped with robust exhaust treatment devices such as advanced particle filters provide ultra-clean diesels more or less the levels of PM and PN emissions of gasoline engines, hence, carries a bright future for emission controls and air quality improvement, however, older and emitting vehicles need to be replaced.
- Study also reveals that potentially the particle filters are probably acting like a ambient air filtering system.
- Based on the trends of experimental results obtained at the laboratory testing and on-road testing; it is evidently submitted that with the support of advanced technologies used in engine and combustion development, fuel injection system, exhaust after treatment systems etc, the current modern BS6 and beyond diesel engines have once again emerged as a potential viable sustainable powertrain for different applications showing opportunity not only to attain ultra-low, near-zero emissions specially NOx, PM and PN emissions consistently over varying polluted ambient air quality, but perhaps also contribute in cleaning the surrounded polluted air to make it breathing worthy.

3.0 Some of the following inputs were broadly collected from the discussions, comments and suggestions:

- Treatment on non-combustible/non-fuel combustion-oriented particles getting int the particle filter
- Suggest to study HCV which is more contributing to particle emissions
- Study the impact of WLTP cycle over presently used MIDC driving cycle for CD tests
- Emphasis on particle size analysis
- PEMS vs CVS system measurement accuracy alignment
- Study CNG vehicle performance also specially considering DELHI scenario where in spite of large number of CNG vehicles, AQI is still at warning levels
- It would be appropriate to conduct study on particle emissions from non-exhaust (non-tail-pipe) sources and their controls. Whether particle filter has any role to play?
- Study of Particle emissions emitting from used vehicles would be more representative
- In India, commercial vehicles are fitted with speed governors, which completely destroys the actual driving boundaries of the IC Engines compared to the test cycle boundaries at laboratories or on-road testing. How does it figure in particle filter behavior?
- Since the vehicle scrappage is still not growing in number, study should be done to understand retrofitment opportunities for the older generation and polluting vehicles. What is the viability and workability?
- Durability pattern of particle filters in the real-field usage needs evaluation
- Study particle filter performance without using vehicle air filter
- Study and evaluate the performance of different filter materials and cell structures
- Impact of regeneration cycles in the particle filter performance in real-field situation. How can it be simulated during the experiments?
- Impact of varying AQI levels on the particle filter regeneration pattern and emissions of PM and PN at the tail pipe

4.0 the meeting ended with a sum-up by Mr Sandesh Kamath briefly mentioning the salient discussion points gathered and assured the participating experts and authorities that ECMA is committed to work and associate with other stake-holders regarding the expectations from transport sector to meet the pollution controls and air quality targets.

5.0 Meeting ended with vote of thanks to all the participants and extending a warm invitation to 15th International conference – ECT 2024, to be held in The LALIT Hotel, New Delhi on 22nd and 23rd October 2024

6.0 Enclosures:

Annexure – 1: Presentation slides (pdf)
Annexure – 2: List of Participants
Annexure – 3: A collage of photographs at the meeting venue