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BRAKE PARTICLE EMISSIONS TF2 STRATEGY

Theodoros Grigoratos and Giorgio Martini

European Commission, Joint Research Center, Sustainable Transport Unit

WHAT IS THE STATUS AT UNECE GRPE?

- ✓ **MANDATE:** The current mandate of the PMP IWG expires in June 2019. The method will not be ready by then therefore an extension of the mandate until June 2020 will be requested.
- ✓ **NEXT STEPS:** DG-GROW requested for the method to be completed by the end of 2019. Afterwards a testing period of 6 months with different brake systems will follow to establish realistic brake wear PM and PN EFs. Based on these results DG-GROW will decide if brake emissions regulation is required.

WHAT IS THE STATUS IN TF1?

- ✓ **TESTING:** All labs will complete testing by the end of February 2019. Several issues were encountered and TF2 will be advised accordingly.
- ✓ **RESULTS:** Results will be collected and analysed in March 2019. A first draft of the results along with the most important messages will be communicated to the PMP Meeting (4 April 2019 - Brussels)
- ✓ **REPORTS:** A draft report including the results and the detailed methodology will become available as soon as all details are fixed.

WHAT IS THE STATUS IN TF2?

- ✓ **PLANNING:** Discussions on the methodology led to a draft document which reflects upon the current state of knowledge. This document will be used as basis for future reporting. TG will circulate a clean version of this document.
- ✓ **TESTING:** After the release of the novel cycle most TF2 partners received the reference brake system by Ford with the aim of testing it in their brake dynos and providing some first emissions results. A list of common parameters to be applied was built and distributed. Experimental data dealing with open questions in TF2 were also requested.
- ✓ **RESULTS:** Very few results have been shared with the TF2 and PMP in this context. It is expected that some results will be presented in the next TF2 meetings as well as in the next PMP Meeting in Brussels

TOPICS/OPEN QUESTIONS - NOVEL CYCLE

- ✓ **SOAK TIME:** The novel cycle foresees long soak times between the trips. This makes it difficult to run several repetitions of the cycle in a reasonable amount of time. What would be the temperature/emissions difference if the cycle runs with reduced soak times?
- ✓ **CYCLE CONTROL:** The novel cycle could run either time or temperature controlled. There are arguments for both choices; however, a standardized method would require the time controlled approach. How accurate is the time approach in reproducing vehicle temperatures?
- ✓ **OTHER CYCLE ISSUES:** Several minor problems were encountered during the TF1 RR with the cycle? Did any TF2 member run the cycle in their dyno? Was it successful? Are there any issues to be reported?

TOPICS/OPEN QUESTIONS - MEASUREMENT

- ✓ **ISOKINETICS:** Suggestion from some TF2 members that isokinetic sampling will not be required. Concerns for high losses of particles $>1\mu\text{m}$. This will compromise $\text{PM}_{2.5}$ and PM_{10} concentrations. Data will be required to show that $\text{PM}_{2.5}$ and PM_{10} are not affected otherwise isokinetic sampling will be required by the proposed methodology.
- ✓ **VOLATILE PARTICLES:** Different approaches has been suggested. Experimental results on the same sampling and brake system with and w/o a catalytic stripper will be required in order to take a decision with regards to the proposed methodology. Decisions will be taken with available data in the next months.
- ✓ **DIFFUSION CHARGERS:** Suggestion from some TF2 members to include DC in technologies for measuring PN concentration. Experimental results on the same sampling and brake system with CPC and DC are required for understanding whether DC can be included to the proposed methodology.

NEXT STEPS

- ✓ **PHASE 1 - COLLECTION OF EXPERIMENTAL DATA:** Suggestion to collect and present in TF2 meetings all related experimental data. Decisions on the previously mentioned open topics will be taken on the basis of the data. The objective would be to present to the PMP Meeting some of these results.
- ✓ **PHASE 2 - DEFINITION OF A REFERENCE SYSTEM:** Based on the decisions taken as well as the current status with regards to existing sampling systems a reference system should be nominated. The requirements for the reference system should be discussed in the next months. The reference system should be defined by the end of 2019.
- ✓ **PHASE 3 - TESTING PERIOD:** A testing period shall follow with the aim of defining the method and the minimum specifications. Details to be discussed in TF2 after the collection of experimental data in Phase 1



Any questions?

You can find us at theodoros.grigoratos@ec.europa.eu;
giorgio.martini@ec.europa.eu