

PMP 49th Session

08 Jan 2019, 14:30-17:30H

Geneva, UN Palais des Nations, Room VIII

Meeting Notes

1. Welcome / Confirmation of the Agenda

2. Changes in the leadership team

Chairman Georgio Martini welcomed the participants. He announced that the Technical Secretary, Caro Hosier, had to resign due to other company responsibilities. On behalf of the PMP team GM thanked for her dedication and leadership contribution to the PMP WG. As new Technical Secretariat Rainer Vogt was appointed by OICA. RV introduced himself working at Ford Research in Germany in emissions and air quality related matter, including PN and non-exhaust emissions.

GM reminded that a new mandate, if considered necessary, has to be submitted to the next GRPE meeting in June 2019.

Meeting minutes of 48. PMP are not yet available - next meeting

Next PMP meeting on 3./4. April in Brussels to be confirmed.

3. Exhaust Particle Emissions

3.1. Round Robin Sub-23nm

RR with two Catalytic Stripper and 10nm CPC in circulation. Participating labs compare also with own standard PMP 23 nm system. Vehicle is a GDI w/o GPF.

- RR to be continued in 2x Chinese labs, 1x Japanese lab and possibly US
- Data and graphs compare CS with ET 350C. Good Repeatability and Reproducibility was shown for PN10.
- When comparing PN10 and PN23 in various labs the difference among the labs varies strongly. A recalibration and redesign might be needed
- CS/ET need to be compared/validated by GPF vehicle.
- Question/comment from Catalytic Instruments (J. Schulz): Operation Temperature of CS? CS was operated at 350 C. Is possible to lower T? This would make it easier for setup. Not investigated yet.

3.2. Raw exhaust sampling

See presentation. Discussion and description of OICA / ACEA exercise; 6 OEMs participating; instruments at tailpipe: CS10 + CPC23; Partial Flow diluter + PMP23 + CPC10. - First results look promising; good agreement partial flow and raw exhaust 23/10nm

3.3. Round Robin PNC (Particle Number Counter)

Calibration RR report available on PMP website. Soot aerosol is possible, but did not show improvement for calibration uncertainty.

No added value modifying current 23 nm calibration procedure. Will be done with 10 nm procedure.

3.4. Horizon 2020 projects

Horizon 2020 projects have similar objective: measure sub-23 nm particle and investigate formation processes. Additionally, also below 10 nm is investigated by EU projects.

PMP follows progress and invites project for presentation. See PMP website.

3.5. WLTP low temperature PN testing

No issues with PN measurement below 0° C., if sampling is done from CVS

OICA/S Carli: CVS tunnel is usually not operating at -7° C. In principle possible at -7° C

Horiba/ L. Hill: Low T WLTP group considered transfer and insulation. Description is available.

3.6. Effect of fuel on PN

Literature review by JRC done. Aromatics, volatility, oxygenate impact described in literature; Fuel PMI defined and shows good correlation with PN – see presentation.

4. Non-Exhaust Particle Emissions

Target: development of a common method for sampling and measuring brake wear particles

4.1. Brakes

Step 1: new real world cycle was developed based upon WLTP analysis; Publicly available in Wear 2018. Cycle is based upon normal EU data. Not included was the instructed driving from Japan. In a separate discussion of OICA/Japan/H. Steven/JRC it was agreed to analyze and compare the cycle data with the Japanese data.

Step 2: Requirements for the emission measurements

Correct cooling? Correct temperatures? Open points to be addressed in RR

Temperatures need to be compared to real vehicle;

Question: Where are Temp measured? Pad and Disc. Compare Pad and disc temperatures.

Work is ongoing on the selection/definition of testing conditions

See presentation for more details, progress and actions.

4.2. Tyre/Road Wear - Tyre Abrasion

in 48th meeting JASIC presented tire dust emission measurement from passenger vehicle

At that meeting also TU Ilmenau presented data on tire wear – presentation is supposed to be available in May 2019.

At 48th meeting ETRMA provided an overview of tire wear particle emissions and Microplastics emissions

5. Next Steps / Preparing for next mandate request

Current mandate: feasibility to measure sub 23 nm; development of a common test procedure for PM and PN brake wear. Methodology for sampling and assessing Brake PM.

Not to develop a regulation. Need to complete tasks as described in the TOR by June 2019

New mandate: a new mandate should consider post Euro-6/VI which has just started in EU

- reduction of 23 cut-off; method to be ready end of 2020

- assessment of the possibility to introduce standard on brake emissions

- Post EU Euro VI/6 would look into tire abrasion

EU COM (P. Dilara) : PMP work needs to be ready by June 2020, including text, incl. calibration description. Prioritize in sub-23 PN work

EU COM (P. Dilara): Not decided when brake wear emission would be done, however very likely it will not be part of the Post-Euro 6/VI package and the development of the methodology is less urgent.

EU COM (P. Dilara): questioned timing plan and time needed for drafting

OICA (R. Vogt): Need to make sure that PN procedure is aligned with potential future PN PEMS – generally agreed

Agreement that common calibration procedure is needed.

Japan (Yamada-san): RR still be ongoing. Need more time to complete

Horiba (L. Hill): RR is just with existing equipment, which was not optimized for 10 nm which would take some more time

JRC (G. Martini): China and Japan RR can be adjusted and potentially new equipment included to answer to open questions?

5.1. **Sub-23nm procedure – milestones plan**

EU COM (P. Dilara) suggested to have two activities, both due in June 2020: 1.) Drafting of text, 2.) Establish correlation of emission values with new sub 23 nm protocol versus PMP protocol. EU wishes to pull ahead the calibration / Drafting

OICA (C. Hosier): setup a web conference for discussing and taking decision on calibration method.

This could mean to take risk that it works- decision could be taken in April meeting

Funding: EU COM answered that all activities are self-funded. EU COM might provide funding for DRAFTing

5.2. **Brakes – novel cycle & test procedure – milestones plan**

After suggesting and completing the methodology, a monitoring phase to assess emission levels needs to follow.

Support by OEMs and suppliers is needed - as done up to date

Timeline would propose a common test procedure by 2021

Japan stresses the need to inclusion of Japan data to the analysis. This should be completed by the next F2F meeting.

5.3. **Tyres – abrasion method**

Likely that method to be developed by EU AdHoc group with stakeholder from tyre manufacturers

PMP could be involved afterwards to investigate possible correlation of abrasion rate and contribution to airborne PM10-PM2.5 emissions

Question: Is road surface to be considered? 3 years ago it was decided that PMP considers emissions coming directly from vehicle. Road wear and resuspension are not in PMP.