

Submitted by the VIAQ Chair and Secretary

Working Paper VIAQ-03-12
(3rd VIAQ meeting; January 13th, 2016)

Report of the 3rd Meeting of the Informal Working Group on Vehicle Interior Air Quality (VIAQ)

Location: Palais de Nation, Geneva, Switzerland
Date: 9:30 to 12:30, January 13th, 2016
Chair: Mr. Jongsoo Lim (Korea)
Co Chair: Prof. Yunshan Ge (China)
Secretary: Dr. Andreas Wehrmeier (OICA)

1. Welcome and opening remarks

The chair welcomed the new Co Chair Prof. Yunshan Ge and the participants of the 3rd Meeting of the Informal Working Group on Vehicle Interior Air Quality. The meeting was very well attended from contracting parties, other groups, and industry organizations participating. (VIAQ-03-10)

The agenda for the meeting (VIAQ-03-02) was reviewed and accepted by all participants.

2. Review the minutes of the 2nd meeting

2.1 Review the minutes of the 2nd meeting

The secretary summarized the meeting minutes of the 2nd VIAQ meeting (VIAQ-02-12). The group approved the minutes with one correction:
Dr. Roberz will make a draft on the storage conditions, not the sampling conditions (see new version VIAQ-02-12-1).

2.2 Progress report

The chair explained the progress report that summarized background, TOR and mandate, leadership team, open item issues, and roadmap to the group. (VIAQ-03-03).

3. Working Items

3.1 Discussion on Working Items List

The chair showed the working item list, which summarizes the main test parameters of the different national standards and the current status of the UNECE VIAQ group. The status of the discussion (parameters under provisional conclusion, under discussion and to be determined) is documented in this list and will be updated in the upcoming meetings (VIAQ-03-04). The working items are discussed as follows;

Closed issues

- Test mode: Adopting the Ambient, Parking and Driving mode based on the ISO-standards with discussions continuing on the detailed parameters. Each contracting party will have a choice of which test modes to adopt depending on their situation (CPs options)
- Substances to be measured: 8 substances (Formaldehyde, Toluene, Ethylbenzene, Styrene, Benzene, Xylene, Acrolein, and Acetaldehyde). The expert of Japan agreed with the outcome of the last meeting concerning these 8 substances.

Open issues

- Car type: Category M1, (Korea) request to add "N1"
- Vehicle ages: 28 ± 5 days
- Test temperature: 25 ± 2 °C, (EC, OICA) 23 ± 2 °C
- Preconditioning (ventilation) time: 30 min
- Soak time for ambient mode: (OICA) $14h \pm 2h$, (Korea) 16h
- Protection covers: Protection covers should stay in the vehicle and be taken off one day before the measurement
- Sampling point: Driver seat, nose position
- Analytics: ISO 16000-3 (Formaldehyde, Acrolein, Acetaldehyde), ISO16000-6 (Toluene, Ethylbenzene, Styrene, Benzene, Xylene)

Regarding the car type, the experts of Korea proposed vehicle category "N1" be added to car type.

Regarding the test temperature, the experts of EU and OICA mentioned that test temperature of 25°C is too high for normal customer conditions and would suggest reduction to 23°C.

Regarding the soak time, the experts of OICA prefer to 14 ± 2 hours and the experts of Korea prefer 16 hours.

The members of KOREA, OICA and other contracting parties are asked to prepare the justification or rationale of the proposals at the next meeting. Then, the group will discuss the open item issues.

3.2 Storage conditions (production date, new car definition)

On behalf of OICA, Dr. Roberz presented a first draft for the transport and storage conditions of the vehicle prior to measurement (VIAQ-03-11).

The group thanks Dr. Roberz for making a first draft for storage conditions. Parameters will be further discussed in the next meeting.

The group discussed the definition of a "new car" regarding "production date" and "mileage". The experts of OICA noted that the idea of "production date" is when the car leaves the facility (the plant) and is handed over to the sales department.

The expert of Korea stated that the sign off date from the production line is the date in which final tests are finished in the production. This date can be checked by the manufacturing certificate from Motor Vehicle Management ACT in Korea.

The experts of OICA noted that each car from the production line with less than 70 km (Germany) or 50 km (ISO) can be considered as a new car. The experts of EC noted that this definition may go in line with the “new car” definition under WLTP COP regulation (80 km).

The secretary noted that the timeline, from production date to measurement date, should be addressed in this group. Then we could review the parameters which can influence the test results.

The other contracting parties are asked to prepare their ideas and continue to discuss on storage conditions, production dates, and new vehicle mileage at the next meeting.

Regarding the family concept, the experts of OICA proposed that we should discuss worst cases. The chair noted that vehicle concepts, worst cases, and conformity of production relate to work scope, so that should be checked with GRPE.

3.3 SAE's position

Mr. Polster presented the SAE position for a new standard suggesting considering the following items (VIAQ-03-06):

- Improve test to test repeatability: Increase mass on the sample; Long soak times for higher more stable concentrations (->14 hours); Higher sample flow rates but without break through, 0.2 L/m for TD tubes and 0.83 L/m for DNPH cartridges, Total volume = 6L for TD tubes and 25L for DNPH.
- Increase and harmonize soak temperature from 23°C to 25°C.
- Put limit values around soak times.
- Include more quality control checks: Report duplicate sample data and include void criteria; Report leak check results
- Standardize test reports with defined data fields and data format
- The full ISO test method, all three parts, should be discussed and adopted by the GRPE working group to achieve global harmonization.

The group thanks SAE for sharing the detailed test results and will consider the suggested test parameters and recommendation for quality check and documentation.

Mr. Polster furthermore mentioned that ISO16000 is currently in a review process and that if there are changes, they will be shared with the group. The review of ISO 12219-1 is scheduled for Sep 2017. The VIAQ group acknowledged that the final document of UNECE could be different from the ISO document form. However, the measurement procedures should be identical between UNECE and ISO.

3.4 Korean position

Dr. Lee presented the Korean position on the following parameters (VIAQ-03-07):

- Ambient, Parking and Driving mode are accepted, but each contracting party may select test modes depending on their situation.
- Parking and drive modes conditions should be reviewed.
- “Category N1” should be added as a Vehicle Category

- Protection covers should stay in vehicles and to be removed the day before measurements are taken. After removing the protection covers, it is important to stabilize temperature as close as possible to 25 °C.
- Age of vehicle at measurement should be the same day or as close as possible to 28 days after end of production/assembly line (production date).
- Soak time should be 16 hours

The group acknowledges Korea's move toward three mode testing in order to reach harmonization between the different parties. The positions of the parameters will be taken into account for next meeting discussions (see working item list).

3.5 Russian position

Dr. Bulycheva presented the Russian position on indoor air quality stating the following items (VIAQ-03-09):

- The problem of lowering the interior air contamination in modern vehicles is relevant.
- The main sources and causes of vehicle interior air contamination are:
 - afflux of lightly mixed exhaust gasses, as well as tires and roadway wear debris within the outside air from vehicles moving next to and behind the vehicle into the vehicle interior;
 - afflux of ozone and hydrocarbons degradation products from interior air cleaners and ionizers;
 - afflux of emission products from interior materials;
 - low air cleaning efficiency of ventilation and air conditioning systems interior filters;
 - Interior non-tightness.
- The main interior air contaminants are ozone (O₃), nitrogen dioxide (NO₂), fine particulates (PM_{2,5}), formaldehyde (CH₂O), coarse particulates (PM₁₀), volatile organic components (VOC), polycyclic aromatic compounds (PAC), including benzopyrene (BP), aldehydes, carbon oxide (CO).
- There is barely any work being carried out for addressing the main causes of interior air contamination, except for limitation of VOC and aldehydes emissions from interior materials.

The expert of Russia noted that the other substances, such as CO, NO, NO₂, etc., would be an interior contamination. The group acknowledges the work of Russia on VIAQ and shares their opinion on hazardous substances from outside air. The chair noted that these items already discussed at the last GRPE meeting (ECE/TRANS/WP.29/GRPE/71). GRPE considered the inclusion in the scope of interior air pollutants from the outside air as a possible extension of the mandate at a later stage.

3.6 Initial Draft standard

The secretary presented a first draft of a working document for the UNECE VIAQ standard. Decisions of the group are transferred to this document, which is based on the ISO 12219-1. Every change to the ISO 12219-1 is highlighted (VIAQ-03-05).

4. Roadmap

The chair explained that the group finalized two important items. They are the test modes and the measurement substances. Until now, the group has proceeded very well and will continue to discuss the open items at the next meeting.

The chair noted that the group would make a draft document of VIAQ recommendations in 2017. It may be officially adopted in 2018. However, if the draft document cannot be finalized by November 2017, the group would need more time and should consider the extension of mandate to finalize the draft document.

5. Proposed agenda/topics for the next VIAQ IWG meeting

The group will discuss and decide on the working item list.

6. Any other business

The group did not receive any information related to this item.

7. Closing remarks and next meeting schedule

The chair thanked all presenters for their presentations and all participants for their valuable contributions.

The 4th meeting is scheduled at

- 30th March (9.30-17.30) and 31th March (9.30-12.30) 2016
- Meeting room "Berlin", Building H, Wang Jing international R&D Park Phase III, No.6 Wangjing east road, Chao Yang District, Beijing, 100102, P. R. China