

Submitted by the VIAQ Chair and Secretary

Working Paper VIAQ-02-12  
(2<sup>nd</sup> VIAQ meeting; November 3rd & 4th, 2015)

## **Report of the 2<sup>nd</sup> Meeting of the Informal Working Group on Vehicle Interior Air Quality (VIAQ)**

Location: OICA, Paris, France  
Date: 14:00 to 17:00, November 3rd & 9:30 to 13:30, November 4th, 2015  
Chair: Mr. Jongsoon LIM (The Republic of Korea)  
Secretary: Dr. Andreas Wehrmeier (OICA)

### **1. Welcome and opening remarks**

Mr. LIM welcomed the participants of the 2nd Meeting of the Informal Working Group on Vehicle Interior Air Quality and introduced the agenda ([VIAQ-02-02](#)).

See the list of participants in the meeting room ([VIAQ-2-14](#)). Mark Polster (Ford), Jörg Göldenitz (VW), Juliette Quartararo (PSA) and Scott Steady (UL) joined via phone.

### **2. Review of the 1<sup>st</sup> meeting**

#### **2.1 Review the minutes of the 1<sup>st</sup> meeting**

Dr. Wehrmeier summarized the meeting minutes of the 1st VIAQ meeting ([VIAQ-01-15](#)). The group approved the minutes without corrections.

#### **2.2 Status report of the 71st GRPE session**

Mr. LIM explained the feedback on his presentation in the 71<sup>st</sup> GRPE session ([GRPE-71-30](#)) on the results of the 1<sup>st</sup> VIAQ meeting. Russia stated in that meeting that the method should not only consider interior emissions generated from interior parts, but also emissions entering from the outside. GRPE as well as this group agrees with Russia that external emissions can have a big impact on VIAQ. However, the intake of external emissions is not part of the TOR of this mandate. GRPE may consider a possible extension of the mandate at a later stage.

### **3. Discussion items**

Mr. LIM gave an overview of the discussion items of this meeting ([VIAQ-02-05](#))

#### **3.1 Explanation of comparison methods**

Dr. Wehrmeier showed a summary of the main testing conditions of the different methods in a table ([VIAQ-02-03](#)). The list of pros and cons of the different test modes from the 1<sup>st</sup> meeting is extended ([VIAQ-02-04](#)).

### 3.2 Korea presentation

Dr. Lee presented the Korean position for the VIAQ test method and gave reasons for the different test parameters. Korea proposes to only use an ambient test method, because:

- According to the TOR document ( 3.1.e), the work scope is “VOCs emitted by interior materials used in the construction of vehicles”.
- According to the survey results, most people use ventilation in the car in summer and there are many use cases of a vehicle ventilation devices’ setting. It is hard to consider “use cases of a vehicle” rather than “material properties”.
- With normal test conditions, the so called the ambient mode, is widely used in building and vehicles areas for indoor air quality, so it is the most suitable for “interior emissions”.

Furthermore, Korea proposes the following main conditions:

- Ambient test temperature: 25 °C ± 2°C
- Vehicle models: Passenger vehicles, vans and buses(Light Duty)
- Age of vehicles: 4 weeks (14-28 days) from the date of manufacture
- Measurement substances: Formaldehyde, Acetaldehyde, Benzene, Toluene, Xylene, Ethylbenzene, Styrene, and Acrolein. See also presentation by Dr. Lee with the rationales for these substances ([VIAQ-02-08](#)).

### 3.3 European commission

Dr. Wehrmeier introduced the EC position submitted by Dr. Dilara, because Dr. Dilara couldn't attend. The EC recommends using ISO 12219-1. See rationales in the written statement ([VIAQ-02-10](#)).

### 3.4 China Statement

Prof. Ge stated that China will issue a new legislation on VIAQ. The test procedure will continue to use an ambient mode as HJT-400 of the existing Chinese Standard GB-T 26730-2011. However, Prof. Ge said that he prefers a three mode test with ambient, parking and driving like ISO 12219-1. Because of timing issues, the other modes cannot be considered in the first legislative document, but may be considered in later revisions. Measured substances are recommended to be Formaldehyde, Acetaldehyde, Benzene, Toluene, Xylene, Ethylbenzene, Styrene, and Acrolein. An extension of the substance list would be considered for the future.

### 3.5 OICA presentation

Dr. Kovacs presented the OICA position ([VIAQ-02-11](#)).

- A harmonized test procedure is beneficial for all stakeholders.
- The most realistic test scenario is ISO 12219-1. It includes the needs for a realistic exposition, an ambient mode and also a parking mode with defined heating by sun simulation.
- OICA supports to take over the complete ISO 12219-1 method for the UNECE standard.
- OICA is open to discuss changes of parameters within this method.
- Only new vehicles shall be tested. Vehicle definition and storage have to be defined. OICA will come up with a proposal for the next meeting in Jan/2016.

### 3.6 OEM results on VIAQ test

Ms. Jang (Hyundai) showed test results of a comparison between the Korean and the Chinese test method ([VIAQ-02-09](#)). Main results:

- Longer preconditioning time (door open time) leads to relatively lower emissions at early stage
- Longer door closed time (soak time) leads to increasing emissions 101~ 187 % 16 hours later
- Emissions can equilibrate about 10 hours passed.

Dr. Polster (Ford) confirmed soak time findings from own measurements.

### 3.7 Provisional testing modes conclusion

The group has a divided position on the test mode for a harmonized standard. Korea is supporting to only use an ambient test mode. The other attending parties (EC, China and OICA) are supporting to use the three mode test procedure like in ISO 12219-1.

**→ To do: The group has to find a compromise (3<sup>rd</sup> meeting).**

### 3.8 Provisional test conditions conclusion

The group proposed the following test conditions for the initial draft of the standard:

- Vehicle categories: Mr. LIM presented an overview of the vehicle categories ([VIAQ-02-06](#)). The group proposed to make a standard for passenger car Category M1 or "Category 1-1 vehicle", respectively.
- Age of vehicle at measurement: 28d ± 5 day after vehicle has left production/assembly line
- Equipment of the car: to be discussed
- Sampling: sampling procedure has to be evaluated. It has been agreed that protection covers should stay in the vehicle and be taken off one day before the measurement.

**-> To do: Dr. Roberts will make a draft of the sampling procedure (3<sup>rd</sup> meeting).**

- Soak time: Equilibrium is reached after approx 10 h. To facilitate the test procedure, it is recommended to have a 14h ± 2h soak time.
- Preconditioning time (doors open): 30 min
- Temperature at ambient condition: 25°C ± 2°C. Temperature has to be as close as possible to 25°C. Deviations have to be documented.
- Humidity: 50% ± 10% (relative humidity)
- Measurement position for temperature and humidity: one at driver seat (nose position) and one outside vehicle (max 1m from vehicle)
- Sampling point: Driver seat (nose position)
- Substances to be measured: Formaldehyde, Acetaldehyde, Benzene, Toluene, Xylene, Ethylbenzene, Styrene, and Acrolein. The group thinks that according to discussion, these are the most relevant substances. An odor test should not be part of the method.
- Analytics: Aldehydes according to ISO 16000-3 and Screening according to 16000-6
- Repeated measurements for vehicles and analytics: to be discussed.

-> **To do: Dr. Wehrmeier will prepare an initial draft document from these proposals (3<sup>rd</sup> meeting).**

#### **4. Roadmap**

The chair explained the proposed roadmap of the project.

The group should try to finalize the test mode(s) and basic test conditions by the 3rd VIAQ IWG meeting at the latest.

#### **5. Proposed Agenda/Topics for the Next VIAQ IWG Meeting.**

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

#### **6. Any Other Business**

The group elected the China delegate (Prof. Ge Yunshan) as the co-chair position.

#### **7. Closing Remarks and Next Meeting**

Mr. Jongsoon Lim thanked all participants for their valuable contributions.

- The 3rd VIAQ IWG meeting will be held on the 13<sup>th</sup> January 2016 during the 72nd Session of GRPE, 9:30-12:30 AM (Wednesday), Palais de Nations, Geneva, Switzerland
- The 4th meeting during the fourth week of March is proposed to be in Asia. To be discussed at the next meeting.