

Progress Report of the VIAQ (Vehicle Interior Air Quality) Informal Working Group

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● VIAQ Background, ToR and Mandate

- **WP.29 Mandate**(ECE/TRANS/WP.29/1112)
 - AC.3 endorsed the proposed action plan to, in a first stage, collect information, review existing standards and develop recommendations.
 - End of mandate : November 2017
- **GRPE Adoption**(ECE/TRANS/WP.29/GRPE/70)
 - GRPE adopted the proposals for terms of reference to the IWG on VIAQ as reproduced in Annex VI of this report.
- **Review of VIAQ Terms of Reference**
 - The scope of the work is to develop a recommendation (R.E.3, S.R.1, or a new Mutual Resolution) to harmonize test procedures of interior air emissions emitted/generated from interior materials.

● **VIAQ IWG Meetings since last GRPE**

➤ **6th VIAQ IWG Meeting**

- Drafting meeting, 22nd September 2016 (conference call)
- Paris, 26th – 27st October 2016

➤ **7th VIAQ IWG Meeting**

- Drafting meeting, 4th January 2017 (conference call)
- Geneva, Switzerland, 11th January, during 74th GRPE session

● The Direction of Work

➤ Test Measurement Modes

- Based on collected information and the review of existing standards,
- VIAQ group agreed that the following test mode is the most suitable for the interior air emission generated from interior materials.

Test mode	Descriptions
Ambient mode	simulates cars parked in the garage overnight (ambient temp)
Parking mode	simulates cars parked outside in the sunlight (high temp)
Driving mode	simulates air-conditioning conditions right after parking mode (Idling, A/C)

➤ Test Measurement Substances (8 types of VOCs)

- Substances to be measured: Formaldehyde, Acetaldehyde, Benzene, Toluene, Xylene, Ethyl benzene, Styrene, and Acrolein.

● Overall Work Status

➤ Working items : 28 total working items

- 5th VIAQ IWG : Closed working items: 15, open issue working items: 13
- 6th VIAQ IWG : Closed working items: 27, open issue working items: 1
- 7th VIAQ IWG : All working items closed

➤ Expected Outcome: A New Mutual Resolution

- Propose for A New Mutual Resolution which is developed to harmonize test procedures of interior air emissions generated from interior materials (VIAQ-07-06)

● Status of Working Items (VIAQ-07-04)

➤ Closed working item lists since the last GRPE meeting

✓ Vehicle categories:

- Category 1-1 (according to the S.R.1, 1998 Agreement) the test procedure should cover passenger cars as well as trucks and busses used as passenger cars. However the test procedure cannot cover busses for public transport, with standing passengers and truck for transportation of goods.

✓ Ambient mode (test temperature):

- Measured values for VOCs and Aldehydes were very similar at both temperatures (23.0°C, 25.0 °C). The test temperature of Ambient mode is from 23,0-25,0 °C, recommended to be as close as possible to 25.0 °C

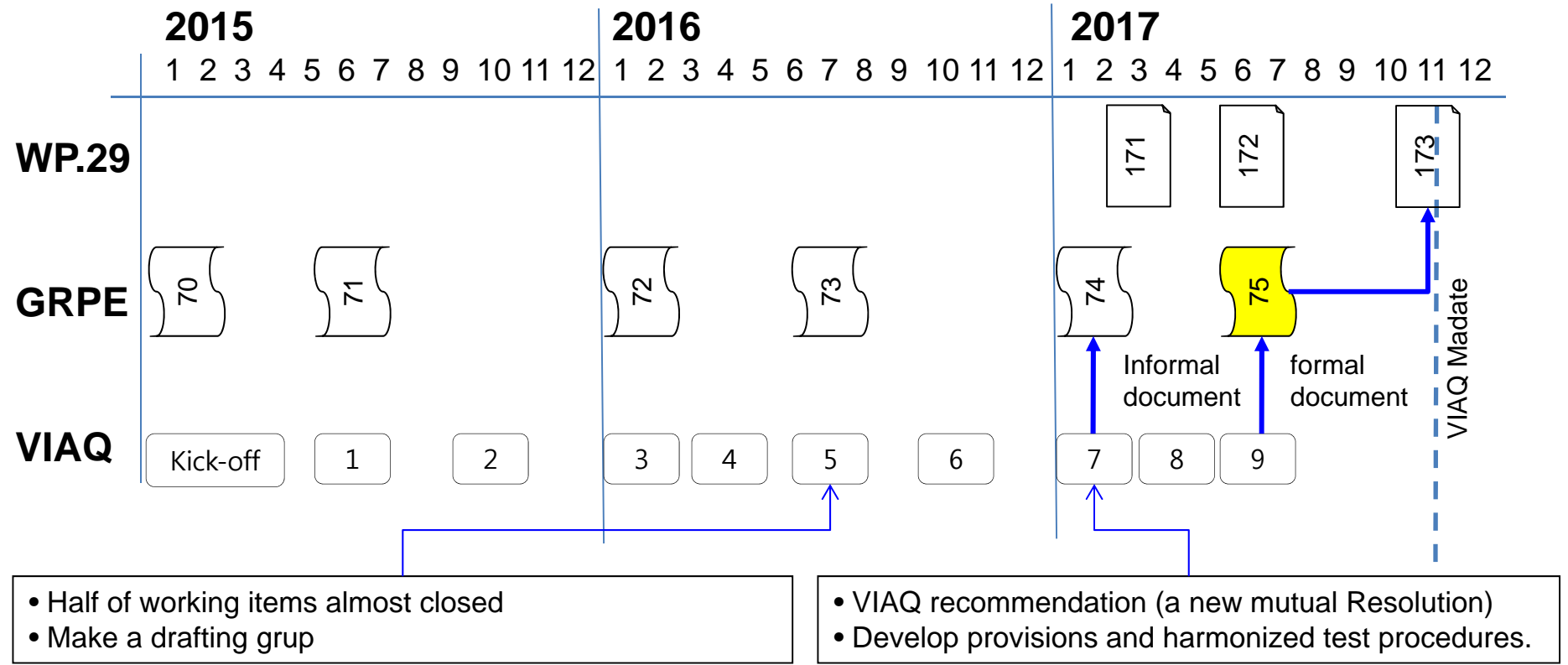
● Status of Working Items (VIAQ-07-04)

- **Closed working item lists since the last GRPE meeting**
- ✓ **Ambient mode doors opening time:** should be opened for 60 min
- ✓ **Preconditioning 1 day before measurement (soak time):** Conditioning should be done nearby the test facility. Store vehicles at a temperature as close as possible to soak temperature (recommended to be 20-30°C). Prevent vehicles from contamination and avoid direct sunlight. All doors and windows should be closed during storage time. Workers should carefully deal with the vehicle to prevent contamination.
- ✓ **Parking mode condition :** Vehicle should be tested after exposed to heat radiation from top for 4h with 400 W/m² according to ISO12219-1
- ✓ **Driving mode condition:** 23.0-25.0 °C according to ISO12219-1

● Status of Working Items (VIAQ-07-04)

- **Closed working item lists since the last GRPE meeting**
- ✓ **Repeated test:** Only 1 vehicle needs to be tested, but repeatability tests are recommended for lab validation.
- ✓ **Sampling number of cartridges:** 1 sample Aldehyde + 1 sample screening is mandatory. It is recommended to test additional sample Aldehyde + screening.
- ✓ **Sampling flow:** max. flow for DNPH cartridges up to 1.0 L/min and for Tenax TA cartridges up to 0.2 L/min
- ✓ **Sampling time:** Aldehydes and VOCs 30 min each.
- ✓ **Reports:** take over from ISO 12219-1
- ✓ **Vehicle family concept :** Vehicle family concept is that same and similar interior materials are grouped. It is recommended to use a darker color for the test car within the group, in order to have the highest solar loading in parking mode testing.

● Roadmap



- **January 2017** : Submit the VIAQ document as an informal document
- **June 2017** : Submit the amendment of VIAQ document, if necessary

● **Second stage of VIAQ IWG Mandate**

➤ **Discussion on the second stage**

- ✓ The experts of the Russian Federation mentioned the importance of the outside air pollutants and proposed for the interior air quality from interior materials as well as from outside air pollutants issue.
- ✓ The expert of OICA showed interests in interior air quality due to outside air pollution. However, manufacturers does not take responsible for interior air pollutants from the outside air.
- ✓ The Russian Federation will prepare the terms of reference document at the next meeting, and then, the group will discuss on the inclusion in the scope of interior air pollutants from the outside air based on the document.

● Exchange Information

- **Current Status of China VIAQ Regulations (China VIAQ-07-09)**
 - ✓ The experts of the China introduced the current status of China VIAQ regulation which will be changed from voluntary standards to mandatory standards
 - ✓ This Standard specifies the emission limits of eight kinds of volatile substances in vehicles of Category M1, as well as classification methods for emission concentrations of volatile organic compounds in vehicles.
- **Introduction of the research concerning exhaust gas from the vehicle entering cabin (Korea, VIAQ-07-08)**
 - ✓ The expert of Korea introduced the issue “Exhaust gas entering into vehicle cabin”. When cars pick up speed with the air conditioning system on internal circulation mode, exhaust gases could enter the passenger compartment due to pressure difference in cabin and vortex flow in back part of the car.

- **Next VIAQ IWG Meeting**

- **8th VIAQ IWG Meeting**

- Moscow, Russia, April (TBC)

- **9th VIAQ IWG Meeting**

- Geneva, Switzerland, June, during 75th GRPE session (TBD)