

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

Webex, April 27th 2021

Chair: Andrey KOZLOV, Russian Federation

Co-Chair: Jongsoon LIM, The Republic of Korea

Secretary: Andreas WEHRMEIER, BMW

➤ **21<sup>st</sup> VIAQ IWG Meeting**

- Webex, 11<sup>th</sup> January 2021
- Half a day

## **Terms of reference and rules of procedure for the Informal Working Group on Vehicle Interior Air Quality (VIAQ)**

Informal document [GRPE-81-09](#)

1.1 VIAQ informal working group developed a new Mutual Resolution No.3 on Vehicle Interior Air Quality taking into account emissions of chemical substances from the interior materials. This issue is linked to evaporative emissions from chemical compounds used in some of the vehicles' interior elements, such as the dashboard, seat etc. The mutual resolution contains provisions and harmonized test procedures for the measurement of interior air emissions from interior materials.

1.2 On the second stage, exhaust gas entry from the tailpipe of the vehicle is taken into account. The amendment of Mutual Resolution No.3 contains provisions and harmonized test procedures for the measurement of interior air pollution from exhaust gases of a tested vehicle. The list of test substances includes CO, NO, and NO<sub>2</sub>.

1.3 Another, probably most important, source of interior air pollution is ambient air, which could contain many harmful substances emitted by other vehicles, power plants, industry etc. [The group considered the inclusion in the scope of interior air pollutants from outside sources as a possible extension of the mandate at third stage. As an extension of the existing Mutual Resolution on VIAQ, this will take into account not only interior air emissions generated from interior materials and exhaust gases from the vehicle entering into the cabin but also outside air pollution sources. The list of outside air pollutions could include CO, NO, NO<sub>2</sub>, SO<sub>2</sub>, O<sub>3</sub> volatile organic compounds \(VOC\), aldehydes, aromatic and aliphatic hydrocarbons, particulate number \(PN\) and mass \(PM\) and microbiological substances, e.g. allergens, fungi, bacteria and viruses.](#) As an extension of the existing Mutual Resolution on VIAQ, this will take into account not only interior air quality but also the air cleaning efficiency of the vehicle air handling & treatment system.

## 2. Procedural Background

2.1 At the 173rd WP.29 session Proposal for a new Mutual Resolution (M.R.3) for of the 1958 and the 1998 Agreements concerning Vehicle Interior Air Quality (VIAQ) was adopted (ECE/TRANS/WP.29/2017/136). Final text of Mutual Resolution M.R.3 was published at UNECE site on 1 of November 2018 as the document ECE/TRANS/WP.29/1143

2.2 At the 172nd WP.29 session, WP.29 endorsed the extension of the mandate of the IWG on VIAQ until November 2020 to extend the work to consider not only emissions generated by interior materials, but also exhaust gases from the tailpipe that enter into the vehicle cabin. (ECE/TRANS/WP.29/1131, para44)

2.3 At the 80th GRPE session, the Chair of the IWG on Vehicles Interior Air Quality presented the draft amendment of Mutual Resolution No. 3 (GRPE-80-21) and requested an extension of the mandate of the IWG on VIAQ until November 2025 to expand the work to consider interior air pollution from outside sources. (ECE/TRANS/WP.29/GRPE/80, para 67)

# 3. Objective

3.1 The VIAQ informal working group will have an open structure, which will enable the exchange of information and experiences on relevant regulations, policy measures and harmonization efforts.

3.2 This proposal expands on the issues of the vehicle interior air quality, addressing outside air pollutants entering into the vehicle cabin and the interior air cleaning efficiency, [to develop a test procedure in a recommendation by including Part 4 in the Mutual Resolution No. 3.](#)

# 4. Terms of reference

- 4.1 The following terms of reference describe the main tasks of the IWG.
- (a) Identify and collect the information and research data on outside and interior air quality and its relevance for vehicles, taking into account the activities being carried out by various governments, and non-governmental organizations.
  - (b) Identify and understand the current regulatory requirements with respect to vehicle interior air quality and incoming air cleaning efficiency in different markets.
  - (c) Identify, review and assess existing test procedures suitable for the measurement of harmful substances while entering into the vehicle cabin and the interior air cleaning efficiency (including test modes, sample collection methods and analysis methods, etc.)
  - (d) Develop provisions and test procedures in a recommendation by including Part 4 in the Mutual Resolution No. 3.

# 5. Timeline

5.1 The work of the group on Vehicle Interior Air Quality should be completed by November 2025. An extension of the mandate of the group should be considered in due time by GRPE, if necessary.

- (a) January 2021: Discussion for the directions and working items.  
Data collection and analysis
- (b) January 2022: Analysis of existing test procedures
- (c) June 2022: Report to GRPE Concept of test procedure, and inform GRPE on future activities from July 2022 to November 2025
- (d) January 2023: Tests by VIAQ IWG members
- (e) January 2024: Start working with draft document and verify test procedure
- (f) January 2025: Submit the draft document to GRPE
- (g) June 2025: Adoption of the draft document by GRPE
- (h) November 2025: Adoption of the draft document by WP.29

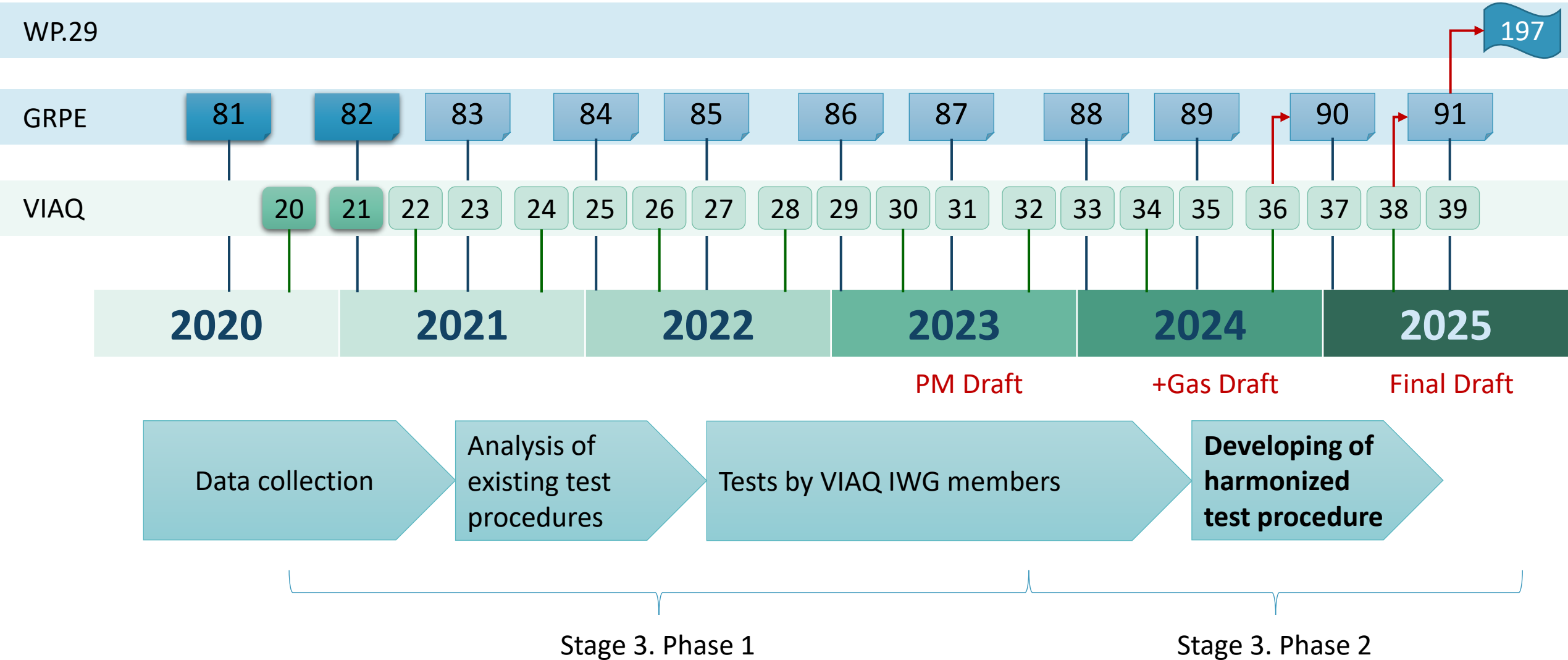


# 6. Scope and work items

- 6.1 Interior air emissions emitted from interior materials
  - (a) Continue to work, review, and assess the harmonized test procedures
  - (b) Update the interior emissions section 2 for the Mutual Resolution
  
- 6.2 Substances from exhaust gases entering to the vehicle cabin
  - (a) Continue to work, review, and assess the harmonized test procedures
  - (b) Update section 3 for the Mutual Resolution
  
- 6.3 Outside air pollutants entering into the vehicle cabin and their cleaning efficiencies
  - (a) Collect the information and research data on relevant air pollutants and similar issues, and understand the current regulatory requirements with respect to vehicle interior air quality in different markets.
  - (b) Review, assess and develop new test procedures suitable for the measurement methods of air pollutants entering into the vehicle cabin and their cleaning efficiencies (including test modes, sample collection methods and analysis methods, etc.)
  - (c) Discuss the potential of air pollutants in the vehicle interior air with toxicologists.
  - (d) Develop a draft for test procedures in a recommendation.

- 7.1 The following rules of procedure describe the functioning principles of the informal working group.
- (a) The IWG is open to all participants from any country or organization of WP.29 and its subsidiary bodies. A limitation of the number of participants for the IWG is not foreseen.
  - (b) A Chair (Russian Federation), a vice chair (Republic of Korea) and a secretary (OICA) will manage the IWG.
  - (c) The official language of the IWG will be English.
  - (d) All documents and/or proposals shall be submitted to the secretary of the group in a suitable electronic format, preferably in line with the UNECE guidelines in advance of the meetings. The group may refuse to discuss any item or proposal, which has not been circulated 5 working days in advance of the scheduled meetings.
  - (e) The informal group shall meet regularly in conjunction with the GRPE sessions, presuming the availability of meeting rooms. Additional meetings will be organized upon demand.
  - (f) An agenda and related documents will be circulated to all members of the informal working group in advance of all scheduled meetings.
  - (g) The work process will be developed by consensus. When consensus cannot be reached, the Chair of the informal group shall present the different points of view to GRPE. The Chair may seek guidance from GRPE as appropriate.
  - (h) The progress of the informal group will be routinely reported to GRPE orally or as an informal document by the Chair or the secretary.
  - (i) All working documents shall be distributed in digital format. The specific VIAQ section on the UNECE website shall continue to be utilised.

# Timeline



## I. Common items

1. Vehicle Category ✓



2. Test Vehicle age/millage

3. Meteorological Conditions

4. Test Conditions

5. Sampling Points/Sampling Lines

6. Background air pollution level

7. Cabin air filter age

## II. PM items

1. PM sizes to be Measured

2. Test Modes

3. HVAC Modes

4. Test Procedure

5. Measurement Methods

6. Test equipment requirements

7. PM analyzers calibration

8. Test Protocol Form

## III. Gaseous components items

**1.Substances to be Measured**

**2.Test Modes**

**3.HVAC Modes**

**4.Test Procedure**

**5.Measurement Methods**

**6.Test equipment requirements**

**7.Gas analyzers calibration**

**8.Test Protocol Form**

# Information discussed last meeting

Company	Presenter Name	Document Title	Document No.
Mahle	Markus Michael	Influence of AC on/off on PM2.5 in-cabin measurement results	VIAQ-21-04
University of California	Heejung Jung	Behavior of carbon monoxide, nitrogen oxides, and ozone in vehicle cabin with a passenger	VIAQ-21-05
AIR	Nick Molden	Progress update on developing standardised method for measuring particle ingress into the cabin and CO2 build-up	VIAQ-21-06
CabinAir	Yingying Cha	Dynamic and stationary measurement of in-vehicle PM2.5	VIAQ-21-07

➤ **23<sup>st</sup> VIAQ IWG Meeting (TBD)**

- Brussels, Belgium, November, 2021
- or Paris, France, November, 2021
- Two days

➤ **24<sup>st</sup> VIAQ IWG Meeting (TBD)**

- Geneva, Switzerland, January, 2022
- Half a day