

## **DRAFT REPORT**

### **5<sup>th</sup> meeting of the GRSG informal group on**

### **the introduction of plastic glazing for windscreens and laminated plastic panes other than windscreens in UN Regulation N°43**

Venue: **OICA offices**

Chairman: Dr. Klaus Preußer (D) (dr.klaus.preusser@t-online.de)  
Secretariat: Mr. Olivier Fontaine (OICA) (ofontaine@oica.net)

Date of the sessions: Wednesday, 05 September 2012 until Thursday, 06 September 2012

Attendees:

|                       |                          |                |
|-----------------------|--------------------------|----------------|
| ACKERMANN, Doris      | OICA/GME                 | (By telephone) |
| ASSELIN, Delphine     | OICA/PSA Peugeot Citroën |                |
| BENYAHIA, Rym         | Freerglass GMBH          |                |
| BIERENS, Mark         | Delta Glass BV           |                |
| BIASS, Rudolf         | Evonik Industries AG     |                |
| BOULAY, François      | OICA/Renault             |                |
| BREE, K-W             | Polyplastic BV           |                |
| Dr. BUCKEL, Frank     | Bayer Material Science   |                |
| CAPELLEN, Peter       | Bayer Material Science   |                |
| CORNELIS, Wouter      | Vinçotte                 |                |
| Dr. DÜMMLER, Matthias | MPA NRW                  |                |
| ESSER, Matthias       | OICA/Daimler             |                |
| FONTAINE, Olivier     | OICA                     |                |
| GERARD, Lucie         | Vinçotte                 |                |
| HAMMER, Jan           | Webasto                  |                |
| HARA, Junichi         | JASIC Japan              |                |
| HELMICH, Gerd         | NSG Group                |                |
| HOSHIKAWA, Akira      | JASIC Japan              |                |
| KANJI NANJI, Anis     | PSA Peugeot-Citroën      |                |
| KIESEWETTER, Bernd    | Evonik Industries AG     |                |
| KILLIAN, Philipp      | Evonik Industries AG     |                |
| MOTTET, Léon-Philippe | ACG Glass Europe         |                |
| PFEIFER, Sascha       | VDA                      |                |
| Dr. PREUSSER, Klaus   | Germany                  |                |
| SABATHIÉ, Pierre      | OICA / Renault           |                |
| SAX, Bernhardt        | SABIC Innovative         |                |
| Dr. SCHMITZ, Jürgen   | KRD                      |                |
| TERRAGNI, Matteo      | Sabic                    |                |
| VEENEMAN, J-P         | Polyplastic BV           |                |
| WIESENBERGER, Frank   | Momentive                |                |

## 1. Welcome and Introduction

## 2. Approval of the agenda

Document: IGPG-05-01 (Chair)

The agenda was adopted with no change

## 3. Revision and approval of the draft minutes of the 4<sup>th</sup> meeting

Document: IGPG-04-05 (Secretariat)

The report was adopted with no change

## 4. Proposal for a wiper test

### 4.1. Outcome of the Subgroup 1 - On-Road-Testing of wiped plastic glazing (real-life-data)

Document: IGPG-TF wiper-SG1-01-01

Dr. Pfeifer presented the document above about the results of the telephone meeting held by the SG1.

Dr. Pfeifer informed the experts that he expected a fleet of 6 to 7 vehicles, to be driven by companies' collaborators, to take part to the research.

### 4.2. Outcome of the Subgroup 2 - lab test equipment to test wiper resistance on small samples

Document: IGPG-TF wiper-SG2-01-03

Mr. Terragni presented the timeline of the SG2, per the document IGPG-TF wiper-SG2-01-03.

Conclusion: the group agreed to discuss in depth the Taber test in order to have a clear view of the necessity to invest in manpower and money into the wiper test.

## 5. Review of the Taber test

Documents:

- IGPG-05-04e Status Taber Test Discussion in ISO (D)
- IGPG-05-05e Abrasion wheel feasibility study report (FGMAJ – Flat Glass Manufacturer Association Japan)
- IGPG-05-06(?) French study on Taber test

### Update on Taber Abrasion Test

Mr. Dümmler clarified that the aim of the exercise was to compare the Taber vs. the Daiwa wheels. All the wheels came from the same lots. The results were analysed by the US experts. But there is some doubt about the analysis performed, hence it was decided to re-check the evaluation. This was done by Mr. Buckel (Bayer).

Mr. Buckel presented IGPG-05-04. 1<sup>st</sup> part is status of ISO work. 2<sup>nd</sup> part of the presentation is a study on the windscreens from KRD.

During the presentation, there was a debate about the nature of the round robin performed by ISO and the relevant information it could bring:

- The nature of the wheels was not delivered by Taber and Daiwa
- The procedure was well defined, but there was still a high dispersion in the results
- The aim of the round robin is not
  - to determine the proper haze value for R43
  - to determine whether the Taber test is appropriate, rather
- The aim is to assess the reproducibility and repeatability of the Taber test.

Conclusion: ISO has finalized a test description for glass, but test description for plastic material is ongoing at ISO.

Concerning the study of the windscreens of police vehicles provided by KRD, it was revealed that, while the mileage has an influence on the haze, some other parameters are of some influence.

The analysis of the images tend to show that the Taber test is not relevant for plastic windscreens, and the car wash test + sand drop test best approach the real world abrasion scheme.

It was mentioned that haze measurement could be a wrong measurement of the discomfort felt by the user: little pits could cause the same haze as long scratches, while the latter are less acceptable to the normal driver than the small pits.

However, it was considered that keeping haze as the criterion would be reasonable in order to keep the discussions simple. In addition, the round robin tests performed to date showed that the haze measurement is reproducible and repeatable.

It was suggested to find a reference material, then use a correction factor. This reference material should be coated plastic material (to avoid too big correction factors) and easily available.

#### Abrasion wheel feasibility study report

J Mr. Hara presented the document IGPG-05-05e

The experts were informed that, as a conclusion of this study, there is in J an attempt to reach the 2% delta haze value.

There was however some concern in increasing the particle size. If such big particle happens to remove from the wheel, there will be no abrasive material in that location at all, i.e. all the results could be altered.

Some experts found the principle of the FGMAJ approach not relevant.

A debate took place about the choice of a proper abrasion test and the reasons in favour or against changing the test. There is a need to demonstrate the abrasive process of each material (i.e. glass vs. plastics), in order to assess whether the Taber test is convenient for each. Another concern was the lack of information about the characteristics of the wheels. An advantage of the Taber test is that it is a well-recognized test.

#### French study on Taber test:

A debate followed the presentation

- should the conclusions be verified, then the problem of the wheels etc can be dropped, because making the influencing parameters tiny permits of course to achieve narrower deviations
- even with the best test protocol, the human factor remains a parameter
- the study does not provide any indication on whether the value of 2% is the relevant one.

The question raised as to whether not using plastic glazing since it reaches the same results as the glass on the field. The reason was that perhaps the plastic glazing can nowadays achieve the qualities of the glass, but cannot fulfil the Taber test performance requirements.

It was considered necessary to get the data from the field test in order to have an assessment of the plastic glazing behaviour in the field.

A fundamental question raised: whether the group does not miss its final target by gathering and accumulating endless data, and whether an acceptable compromise could be reached within the informal group, with unanimity, for a test method (whether Taber or another).

It was suggested to federate the forces in order to make plastic glazing win the battle of introduction in the market.

A fast *tour de table* revealed that at least six experts are in favour of dropping the Taber test for plastic glazing for windscreens and side windows in front of the driver’s eyes, i.e. elaborating a new test for them.

| <b>Keep Taber</b> | <b>Neutral</b> | <b>Drop Taber</b> |
|-------------------|----------------|-------------------|
| PSA               | Sabic          | Evonik            |
| Renault           | Webasto        | John Deere        |
| AGC               | Altuglass      | Bayer             |
| NSG               | JAMA           | Daimler           |
| FGMAJ             | Freeglass      | KRD               |
| JASIC             | Vinçotte       | Momentive         |
|                   |                | Polyplastic       |
|                   |                | MPA               |

Some companies were in favour of changing their mind should it be proven that the Taber test is relevant for plastic glazing.

France confirmed that their study is still on-going, but did not expect any change in the conclusions. MPA was of the opinion that the problem could be formulated as follows:

- even with improved discrepancy, the value of 2% would be too difficult to achieve
- the real question would be whether the wiper test would be relevant, in combination with sand drop and Amtec-Kistler tests.

PSA was keen that the coating itself be discussed

Bayer was keen that the test best represents the wear that can be seen on the real field; it was pointed out that such approach would delay the introduction of plastic windscreen by at least 10-15 years.

Automotive Industry was reluctant in investing resources in a new test with no guarantee that it would be beneficial.

FGMA-J was of the opinion that 2% delta haze could be put into question again, and that new value of haze or criteria could be found.

The group proceeded with another *tour de table*:

The question was as follows: Are you ready to accept the wiper test (in combination with sand drop and Amtec-Kistler on three different samples), as an ALTERNATIVE to the Taber test in R43, if the group provides “sufficient evidence” that the wiper, the sand drop and Amtec-Kistler tests are together relevant for plastic windshields (glazing in front of the driver’s eyes)?

| <b>Ready</b>           | <b>Neutral</b> | <b>Not ready</b> |
|------------------------|----------------|------------------|
| Unanimity but Vinçotte | Vinçotte       | Nobody           |

Examples of definitions for “sufficient evidence”:

“sufficient evidence” means:

- 200 000 km mileage, wear in real field must be comparable to wear after performing the tests.
- Good reproducibility of the test, good correlation to reality by image analysis and perhaps other means
- Definition to be set up by the wiper TF

Another informal group to GRSG could be established to assess whether the Taber test is representative of reality

## **6. Outcomes of 6 m drop height test for laminated side windows (EVONIK)**

Evonik presented document IGPG-05-08

No ball drop test measurement available to date.

Evonik questioned the logic of the different drop heights in UN R43: in real world a stone does not make the difference between the different materials. It was suggested that these drop heights had been set up for discriminating the good and the bad materials.

It was decided to reverse back to the original text of the regulation, and that the text would be further improved when relevant test results will be available.

## **7. Further discussion of the draft regulatory text**

Document: IGPG-05-02 (Secretariat)

The group reviewed the document and the Secretariat was tasked to produce a revision of the text for the next meeting of the informal group.

## **8. Results of the BASt research on head impact**

The experts were informed that the official report is now available as document IGPG-05-07 and can be downloaded at the following website address, as well as any other document of the informal group: <https://www2.unece.org/wiki/pages/viewpage.action?pageId=3178513>

## **9. Revision of the mandate**

Document: IGPG-01-08 (terms of reference)

Background: In view of the outcomes of the TF Wiper, the group could decide to request an extension of the mandate to [GRSG-106 / April 2014]

The group agreed to request an extension of the mandate to April 2014.

## **10. List of action items for next meeting**

- Secretary to produce informal document for GRSG-103 (GRSG-103-20)
- OICA to provide input on the points relevant to Mr. Esser
- Chair to prepare report to GRSG.
- EVONIK to provide results of 6 m ball drop test if available

## **11. Schedule for further IG meetings**

Document: GRSG-99-25 (D)

IGPG-06: European Commission 22-23 January 2013

IGPG-07: JohnDeere 18-19 June 2013

## **12. Any other business**

Document: IGPG-05-03 (Vinçotte)

Vinçotte presented this document as information to the group.