

**Draft report for the 12th meeting of the informal group on
“Behaviour of M2 & M3 general construction in case of Fire Event (BMFE)”**
(<https://wiki.unece.org/display/trans/GRSG-BMFE-12>)

Date:	2020, December 1 st 2020, December 2 nd	14:00 – 16:00 (CET) 14:00 – 16:00 (CET)
Venue:	Teams meeting	

1. Welcome and Roll call

Fabrice Herveleu welcomes everybody

2. Adoption of the agenda (*BMFE-12-01*)

Agenda adopted with point 5 regarding R118 Smoke toxicity reported to the next session

3. Validation of the minutes of the last meeting (*BMFE-11-05*)

No remarks, minutes adopted

4. Regulation No.107 – Glass breaking device : efficiency ways of improvement

4.1. Principle #1 on location

4.1.1. Inputs on location from railway application [SWE] (*BMFE-12-05*)

Example shown as seen in a train in Sweden.

No further specific data available.

For other devices already in use like the Safe-T Punch as shown by Scania in earlier meeting, the location is in the corner of the window. No real requirements from the manufacturer of the device, it only has to be in the corner.

So the question was asked in the group if it is necessary to specify the place where to put a device? Or is only efficiency needed? In R43 for the testing of the glazing, the force to apply is important but not the location.

➔ **Consensus: It was then agreed within the group that efficiency is important rather than the position, but also the importance of visibility and the importance of non-intentional operation. It was concluded that the result must be to break the window, but without the need for specific requirements on the breaking forces (see also point 4.3 Principle #3 ‘easy to use’)**

4.1.2. Alternative systems collection [ALL]

No further info from the group

4.2. Principle #2 on visibility

4.2.1. 06 series articulation on emergency lightings [Daimler] (*BMFE-12-04*)

R107-06 “7.8.4. Individual lights for each of the items in paragraph 7.8.1. above are not required providing adequate illumination can be maintained during normal use.”

When the regulation says that individual lights for each item are not required when adequate

illumination can be maintained during normal use, does this mean that emergency lights must be installed, markings and controls must be in the bus, and if they give enough light, then it's ok? Only controls must be illuminated it seems.

R107-06 “7.8.3. *Vehicles of Classes II, III and B shall be equipped with an emergency lighting system.*”

Technology neutrality is very important!

-What with ‘safety signs’ made out of reflecting material? Will this be visible when the vehicle is filled with smoke?

-What with performance of the equipment? What in case of a crash, should the area to be highlighted have a certain level of lux?

→ consensus: Active lighting not required, only passive identification-facilitation could be enough by means of a red color and marking

4.2.2. Position on the need for specific identification [ALL]

What do we do with the current provisions for the hammer? It is between the windows now, sometimes hid by the curtains. If we would place a new device on the window, the visibility would be better and extra lighting is maybe not necessary, only markings could be enough?

Device could be marked with a red pictogram or other means, passive marking with colors?

4.3. Principle #3 on easy to use

4.3.1. Alternative systems collection with associated force level [ALL]

No force needed for operation of emergency doors, so no force for device needed either. The passenger compartment is also for children and elderly people, should be easy to use for them too! Evaluation of already existing devices needed (way to operate, etc)

→ Consensus: No need for maximum level of force, only confirmation that it is adapted for all passengers.

4.3.2. Reflexion on glass ejection facilitation [ALL]

For the current hammer no glass ejection is defined or covered.

If the window would have a film, it would be possible to push the window out, like in the German text (BMFE-12-02e). A comment was made that in some cases the glass falls out (window parts must be rounded – safety glass – to push it out with your hands without the risk of injuries).

With laminated glazing/single or double glazing with film we have to watch out for invalidation of the glass homologation → retest/extension of approval

In city buses in Berlin a test case with a safety film on the glass has been done. Some kind of anti-scratch film has been used. It makes the glass ejection very fast, 7 seconds, without the film it takes up to 30 seconds. The glass and the film were tested together and put in a national approval (approved as plastic glazing?). **Synthesis of the study to be provided by Germany?** If a film would be placed on the windows then the bus manufacturer has no COP for doing these

tests, he is not validated to type approve glazing with plastic film. If these windows can be bought, “ready to use” according to R43 would be good to know.

Germany will check if these Berlin tests are containing this information for the next session. Also Volvo Bus will check with the supplier of the windows.

Is a film on the glass needed to push it out? According to Aguila the windows today are safe enough to push them out without injuries.

To look at all text to align all wordings “readily breakable”

A sign to show where to push like in the trains is a good idea according to the group.

→ Consensus: need to facilitate glass ejection – film on glass needed? Topic kept at the agenda to be further discussed. There is a need to consider the vehicle outside configuration.

4.4. First draft amendment proposal for discussion basis [FR]

BMFE-12-03

In Point 7.6.8.2.2 “affixed”, “Easily” and “simple action”

Remarks:

- “During type approval” → to demonstrate also by the manufacturer?

Some experts support this approach, simple and reaching the initial objective than other experts consider that too much responsibilities are put on TS.

BMFE-12-02

In point 7.6.8.2.2 “easy to operate”, “permanently fixed” and “middle third of window”

Remarks:

- Middle third → visibility?
→ adjacent to upper corner to avoid unintentional use
- watch out for complete film on windows so the window doesn't fall on the inside of the bus on a person's head → look at possible cases for the next session

For these proposals some general questions:

- how will a device be evaluated as efficient during type approval? → a technical service will have to check everything of these requirements by testing.
- What about the efficiency of a device after 10 years? Will the spring load still be ok?
- What about the thickness of the film that must be used if necessary to use film?

- how to determine the place on the window? For all devices the same? We have to be clear where a device must be put to avoid that different TA authorities have different views on testing. Also different manufacturers can have difficulties with the upper corner for instance because of luggage racks. So is the exact position necessary to put in the regulation? Acc. to EC the position has to be provided but if the vehicle structure is not compatible, another alternative may be provided.

Is safety glass or a plastic film the best to use? Question to ask to fire departments?

Some experts consider that if a plastic film is relevant, additional requirements shall be addressed. It seems to be needed to find an UNR 43 approved component if available. Some experts consider that this application is not adapted to all vehicle structures and could be replaced by safety recommendations on how to push the window for ejection as it is applied in railway.

Germany will investigate which kind of approved glass are used in Berlin and Volvo will ask if glass supplier can provide such product.

A combination of both the French and the German document will be made by France and Germany, wordings will be merged keeping a combination of based-requirements and opportunity for alternative in case of vehicle structure is not adapted.

5. Regulation No.118 – Smoke toxicity : development of a simplified method for interior materials

5.1. Status of study progress [BAM] **reported to next session**

5.2. Material targeted and relevant results sharing [BAM] **reported to next session**

6. A.O.B & Next steps and meetings

- A combination of both the French and the German document will be made by France and Germany, wordings will be merged.

- Investigate which components can be bought from the glass manufacturers – plastic film!

- try to investigate which solution is the best, safety glass or a plastic film

Next Meeting 03/03/2021 → 10:00-12:00 and 14:00-16:00

Documents to be provided before 24/02/2021

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