



Behaviour of M2 & M3 general construction in case of Fire Event

IWG - BMFE

●●● IWG BMFE overview

⇒ 2 meetings on 2018 4th quarter / 2019 1st quarter

- ⇒ Chair : France (UTAC)
- ⇒ Secretary : OICA

⇒ 5th meeting

- ⇒ 2018 November 27th / 28th
- ⇒ Madrid location (INSIA)
- ⇒ 19 attendees : 3 contracting parties / 7 vehicle manufacturers / 4 automotive suppliers / 5 test centers

⇒ 6th meeting

- ⇒ 2019 February 27th / 28th
- ⇒ Oslo location (Norwegian Public Road Administration)
- ⇒ 20 attendees : 4 contracting parties / 5 vehicle manufacturers / 6 automotive suppliers / 5 test centers

●●● 5th IWG BMFE meeting

🚧 UNECE n°118 Contents

🚧 Toxicity and opacity

- Results of the test performed on materials already approved under R118 : most of the tested materials are not compliant with generic protocol coming from railway testing method.
- Need to go further in detail for opacity to focus on testing propotocols adapted to road application (duration, irradiation, ...)
- Alternative option : very low flame propagation speed (“non burning materials”) without opacity/toxicity requirement, or higher propagation burning rate with toxicity/opacity requirements.

●●● 5th IWG BMFE meeting

⇒ UNECE n°118 Contents

⇒ Toxicity and opacity

- German proposal : Research study engaged for 10 months starting beginning of 2019 in order to defined a simplified material toxicity test method adapted for road transport.

⇒ Adhesive agent

- Test results on adhesive agent influence : no big gap in terms of inflammability behaviour have been noted. A regulation update is under construction to define the list of agents that can be used without deterioration of the burning behaviour capabilities.

● ● ● 5th IWG BMFE meeting

🚩 UNECE n°107 Contents

🚩 Automatic exit opening : draft wording proposal

« § 7.5.1.6. In the case of vehicles of Classes II, III and B, having the engine located to the rear of the driver's compartment, and in the event of excess temperature in the engine compartment or in any compartment where a combustion heater is located the emergency **lighting system** according to paragraph 7.8.3. **shall automatically activate**, and the **power-operated service doors** situated on the side of the vehicle that is nearer of the side of the road corresponding to the direction of traffic for which the vehicle is designed **shall open automatically when the vehicle is stationary or driving at a speed less than or equal to 3 km/h.**”

●●● 5th IWG BMFE meeting

✈ UNECE n°107 Contents

✈ Safety instructions : draft wording proposal

“§ 7.19. *Safety information: Means to transmit safety information, which permit the operator or the user to easily **inform the passengers of the safety instructions** as e.g. the location of the emergency exits, the location of the fire extinguishers, safety sign, **shall be specified by the manufacturer** in the application for approval.*

*These means **shall be adapted to the design and architecture of the vehicle** with the aim of making the safety instructions easily intelligible by the user of any passenger seat.”*

●●● 6th IWG BMFE meeting

🚩 Table of accidentology : main crossing factors

- 🚩 Fires account for between 1.0 and 1.5% of fires in buses and coaches in service.
- 🚩 Around 10% of buses are involved in fire event during their service lifecycle.
- 🚩 Fire events are not mainly the result of impacts.
- 🚩 Fires occur mainly in the engine compartment due to fluid leaks, but in most cases the vehicle does not burn completely.
- 🚩 Evaluated evacuation times seems to be below 5 minutes

● ● ● 5th IWG BMFE meeting

🚩 UNECE n°107 Contents

- 🚩 Full scale test : analyzis of previous tests already performed (RISE) and opportunity to fill in with full scale test leaded by Aguila → fire ignition in engine compartment with 2 setups, emergency exits opened / not opened.

- 🚩 Main chronology to deal with, according to previous test results :
 - Smokes will chronologically appear first, bringing opacity and toxicity effects

 - Insulation of engine compartment is such that the thermal effect is not predominant

● ● ● 6th IWG BMFE meeting

⇒ UNECE n°107 Contents

- ⇒ Combination of fire detection and fire suppression warnings to the driver : target is to avoid a fire suppression system engagement without alarm to the driver due to a more sensitive detection device included in the fire suppression system. Draft wording proposal :
“The fire suppression system may alternatively be activated automatically by other means, as long as it activates the alarm system”
- ⇒ Studies on going trying to define a minimal performance level for fire detection systems (temperature or other means)
- ⇒ Technical overview on available systems for smoke extraction in other applications

●●● 6th IWG BMFE meeting

🚩 UNECE n°118 Contents

- 🚩 Opened discussion on the current inflammability requirement relevancy
- 🚩 Balance between the 3 main parameters has to be defined for road applications : flame spread, smoke toxicity and smoke density (first step of the german toxicity study)
- 🚩 Opened discussion on a comparison matrix to compare reasons and consequences of requirements per transport mode, including cost rates.

●●● 6th IWG BMFE meeting

⇒ UNECE n°118 Contents

- ⇒ Adhesive agents : draft wording proposal on annex 2 regarding Information document for component

“5. Adhesive agents

5.1. In cases where adhesive agents are used to affix the material to supporting structures or bonding materials together, a list of adhesive agents that can be used without deterioration of the burning behaviour of the material(s):“

 7th IWG BMFE meeting

 **Next session**

-  1 ½ day meeting
-  2019, June 25th – 26th
-  Location : BASt (Bergisch Gladbach)

UTAC CERAM



Thanks for your attention.