

## Adhesives used for installation purposes – R118

Intention is to move away from an interpretation that already type-approved material would become a new (composite) material based on the use of an adhesive.

Proposal 1:

Address the adhesive issue in Part II and using the conditions of Part I, 5.2.3., materials shall be installed in accordance with their verified performance.

Part I, paragraph 5.2.4., amend to read:

5.2.4. Any adhesive agent used to affix the ~~interior~~ materials covered by paragraph 5.2.1. to its supporting structure shall not, as far as possible, exacerbate the burning behaviour of the material. [Adhesive agents for which fire properties have been verified against relevant standards shall be deemed to fulfil this provision.]

The introduction of a provision referring to prior verification may lead to a voluntary motivation for manufacturers to choose subcontractors and suppliers that have done this effort. Without further It may thereby have a beneficial effect on fire safety in buses may be achieved, which is the purpose of Regulation 118, without further testing. Either here or in para. 6.1.1.5. below.

Part II, paragraph 6.1.1.5., amend to read:

6.1.1.5. Other characteristics in so far as they have an appreciable effect on the performance prescribed in this Regulation, e.g. fire propagation properties of adhesive agent(s) used for installation, if applicable. [Adhesive agents for which fire properties have been verified against relevant standards shall be deemed non-hazardous for the purpose of this regulation.]

Part II, paragraph 6.2.1. to 6.2.4., amend to read:

6.2.1. The following materials shall undergo the test described in Annex 6 to this Regulation:

(a) Material(s) and composite material(s) installed in a horizontal position in the interior compartment and,

(b) Insulation material(s) installed in a horizontal position in the engine compartment and any separate heating compartment.

The result of the test shall be considered satisfactory if, taking the worst test results into account, the horizontal burning rate is not more than 100 mm/minute or if the flame extinguishes before reaching the last measuring point. **If use of adhesive agent(s) for the installation of the material is foreseen, the fire propagation properties of the agent shall be taken into consideration.**

Materials fulfilling the requirements of paragraph 6.2.3. are considered to fulfil the requirements in this paragraph.

6.2.2. The following materials shall undergo the test described in Annex 7 to this Regulation:

- (a) Material(s) and composite material(s) installed more than 500 mm above the seat cushion and in the roof of the vehicle,
- (b) Insulation material(s) installed in the engine compartment and any separate heating compartment.

The result of the test shall be considered satisfactory if, taking the worst test results into account, no drop is formed which ignites the cotton wool. **If use of adhesive agent(s) for the installation of the material is foreseen, the melting properties of the agent(s) shall be taken into consideration.**

6.2.3. The following materials shall undergo the test described in Annex 8 to this Regulation:

- (a) Material(s) and composite material(s) installed in a vertical position in the interior compartment,
- (b) Insulation material(s) installed in a vertical position in the engine compartment and any separate heating compartment.

The result of the test shall be considered satisfactory if, taking the worst test results into account, the vertical burning rate is not more than 100 mm/minute or if the flame extinguishes before the destruction of one of the first marker threads occurred. **If use of adhesive agent(s) for the installation of the material is foreseen, the fire propagation properties of the agent(s) shall be taken into consideration.**

6.2.4. Materials achieving an average CFE (critical heat flux at extinguishment) value greater or equal to 20 kW/m<sup>2</sup>, when tested according to ISO 5658-2<sup>1</sup>, are deemed to comply with the requirements of paragraphs 6.2.2. and 6.2.3., provided no burning drops are observed when taking the worst test results into account. **If use of adhesive agent(s) for the installation of the material is foreseen, the agent(s) shall be taken into consideration.**

Proposal 2:

Keep 5.2.4. as is but clarify definition of “composite material”.

Part II, paragraph 6.1.3., amend to read

- 6.1.3.            "*Composite material*" means a material composed of several layers of similar or different materials intimately held together at their surfaces by cementing, bonding, cladding, welding, etc. When different materials are connected together intermittently (for example, by sewing, high-frequency welding, riveting) **or when already type-approved materials are installed by use of adhesive agents**, such materials shall not be considered as composite materials.

Proposal 3:

Introduce a check and exclude installations out of scope based on Part I, 5.2.1 (02 SA and 03 SA).

Part I, paragraph 5.2.4., amend to read:

- 5.2.4.            Any adhesive agent used to affix the ~~interior~~ materials **covered by paragraph 5.2.1.** to its supporting structure shall not, ~~as far as possible,~~ exacerbate the burning behaviour of the material. **This provision shall be verified to the satisfaction of the technical service and the type-approval authority. [Adhesive agents for which fire properties have been verified against relevant standards shall be deemed to fulfil this provision.]**

Proposal 4:

A combination of the proposals above