

Proposal for a new series of amendments to Regulation No. 118 (Burning behaviour of
Materials)

A. PROPOSAL

The list of contents, renumber item 6.1.1. to read 11. (error in the published text)

Paragraph 1.3., amend to read:

"1.3. Part II - Approval of a component with regard to its burning behaviour and/or its capability to repel fuel or lubricant installed in the **interior passenger** compartment, the engine compartment or any separate heating compartment."

Paragraph 2.2., amend to read:

"2.2. **"Interior compartment"** means the passenger compartment (including any space occupied by fixed appliances such as bars, kitchenettes, toilets), crew sleeping compartments and the driver compartment."

~~"Passenger compartment" means the space for occupants' accommodation including bar, kitchen, toilet, etc.);~~ **The interior compartment shall be bounded by:**

- the roof,
- the floor,
- the side walls,
- the doors,
- the outside glazing,
- the rear compartment bulkhead, or the plane of the rear seat,
- back support,
- ~~— at the driver's side of the longitudinal vertical median plane of the vehicle, the vertical transversal plane through the driver's R point as defined in Regulation No. 17.~~
- ~~— at the opposite side of the longitudinal vertical median plane of the vehicle, the front bulkhead.~~

Insert a new paragraph 2.9., to read:

"2.9. **"Material installed in a vertical position"** means materials installed in the interior compartment of the vehicle such that its slope exceeds 15 per cent from the horizontal when the vehicle is at its mass in running order and it is standing on a smooth and horizontal ground surface."

Paragraph 4.2., amend to read:

"4.2. An approval number... (at present ~~04~~ **02** corresponding to the ~~04~~ **02** series of amendments) shall indicate..."

Paragraphs 5.2.1. to 5.2.3., amend to read:

- “5.2.1. The materials of the **interior passenger** compartment, the engine compartment and any separate heating compartment used in the vehicle to be type approved shall meet the requirements of Part II of this Regulation.
- 5.2.2. The materials and/or equipment used in the **interior passenger** compartment, the engine compartment and any separate heating compartment and/or in devices approved as components shall be so installed as to minimize the risk of flame development and flame propagation.
- 5.2.3. Such materials and/or equipment shall only be installed in accordance with their intended purposes and the test(s) which they have undergone (see paragraphs 6.2.1., 6.2.2., 6.2.3., 6.2.4., 6.2.5., ~~and~~ 6.2.6. **and 6.2.7.**), especially in relation to their burning and melting behaviour (horizontal/vertical direction) and/or their capability to repel fuel or lubricant.”

Paragraph 6.1.4., amend to read:

- "6.1.4. "Exposed face" means the side of a material which is facing towards the **interior passenger** compartment, the engine compartment and any separate heating compartment when the material is mounted in the vehicle."

Paragraphs 6.2.1. to 6.2.3., 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**, ~~used for the upholstery of any seat and its accessories (including the driver's seat),~~
 - (b) **insulation material(s) installed in a horizontal position in the engine compartment and any separate heating compartment.**
 - ~~(b) material(s) used for the interior lining of the roof,~~
 - ~~(c) material(s) used for the interior lining of the side and rear walls, including separation walls,~~
 - ~~(d) material(s) with thermal and/or acoustic function,~~
 - ~~(e) material(s) used for the interior lining of the floor,~~
 - ~~(f) material(s) used for the interior lining of luggage racks, heating and ventilation pipes,~~
 - ~~(g) material(s) used for the light fittings~~

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.

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, used for the interior lining of the roof,**
- (b) **insulation material(s) installed in the engine compartment and any separate heating compartment.**
- ~~(b) material(s) used for the interior lining of the luggage racks, heating and ventilation pipes situated in the roof,~~
- ~~(c) material(s) used for the lights situated in the luggage racks and/or roof.~~

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.

6.2.3. The **following** materials ~~used for the curtains and blinds (and/or other hanging materials)~~ shall undergo the test described in Annex 8 **to this Regulation: (addition to the published text)**

- (a) **material(s) and composite material(s) installed in a vertical position in the interior compartment,**
- (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, 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."**

Insert a new paragraph 6.2.4. (including the insertion of a new footnote 3/), to read:

“6.2.4. As an alternative specification to paragraphs 6.2.2. and 6.2.3. ISO 5658-2 3/ may be applied.

The result of the test on flame spread shall be considered satisfactory if the average value of CFE is greater or equal to 20 kW/m².

The result of the test shall be considered satisfactory if, taking the worst test results into account, no burning drops are observed.

3/ ISO 5658-2 Reaction to fire tests - spread of flame - Part 2: Lateral spread on building and transport products in vertical configuration, 2nd ed 2006-09-15, International Standardisation Organisation, Geneva, 2006.”

Paragraphs 6.2.4. to 6.2.5., renumber as paragraphs 6.2.5 to 6.2.6.

Insert a new paragraph 6.2.7., to read:

“6.2.7. Materials in the interior compartment, the engine compartment or any separate heating compartment, which are installed in both vertical and horizontal position shall undergo the test described in Annex 8 to this Regulation. In this case testing according to Annex 6 to this Regulation is not necessary.”

Paragraphs 6.2.6. to 6.2.6.3.2., renumber as paragraphs 6.2.8. to 6.2.8.3.2.

Paragraph 6.2.8.3.2., amend to read:

"6.2.8.3.2. 300 cm² or 120 cm³ per seat row and, at a maximum, per linear metre of the interior of the **interior passenger** compartment for these elements which are distributed in the vehicle and which are not connected to an individual seating place;"

Insert new paragraphs 12.6. to 12.9., to read:

“12.6. As from the official date of entry into force of the ~~01~~ **02** series of amendments, no Contracting Party applying this Regulation shall refuse to grant ECE approval under this Regulation as amended by the ~~01~~ **02** series of amendment.

12.7. As from [**XX**] months after the official date of entry into force of the ~~01~~ **02** series of amendments, Contracting Party applying this Regulation shall grant ECE approvals only if the vehicle type or component type to be approved meet the requirements of this Regulation as amended by the ~~01~~ **02** series of amendments.

12.8. Starting from [**XX**] months after the official date of entry into force of the ~~01~~ **02** series of amendments, Contracting Party applying this Regulation may refuse first national registration (first entry into service) of a vehicle which does not meet the requirements of this Regulation as amended by the ~~01~~ **02** series of amendments.”

12.9 Even after the date of entry into force of the ~~01~~ **02** series of amendments, approvals of the components to the preceding series of amendments to the regulation shall remain valid and Contracting Parties applying the Regulation shall continue to accept them and shall not refuse to grant extensions of approvals to the ~~00~~ **01** series of amendments to this Regulation.”

Annex 1, the title, amend to read:

“INFORMATION DOCUMENT

(in accordance with paragraph 3.2. of this Regulation relating to the ECE Type Approval of a vehicle with regard to the burning behaviour of the components used in the **interior passenger** compartment, the engine compartment and any separate heating compartment and/or the capability to repel fuel or lubricant of insulation materials used in the engine compartment and any separate heating compartment)”

Annex 2, the title, amend to read:

“INFORMATION DOCUMENT

(in accordance with paragraph 3.2. of the Regulation relating to the ECE Type Approval of a component used in the **interior passenger** compartment, the engine compartment and any separate heating compartment with regard to its burning behaviour and/or the capability to repel fuel or lubricant of insulation materials used in the engine compartment and any separate heating compartment)”

Insert new paragraphs 4.7. to 4.14., to read:

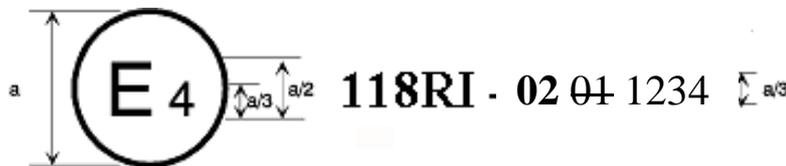
- “4.7. **Mark and type of the material (reference):**
- 4.8. **Nature of the cable hose:**
- 4.9. **Colour of the cable hose:**
- 4.10. **Nominal section of the cable:**mm²
- 4.11. **Diameter of the cable core:**mm
- 4.12. **Number of strand of wires:**
- 4.13. **Diameter of each strand of wires:**mm
- 4.14. **External diameter of the cable:**mm”

Annex 5, amend to read:

“Annex 5
ARRANGEMENTS OF APPROVAL MARKS

Example 1

(see Part I of this Regulation)

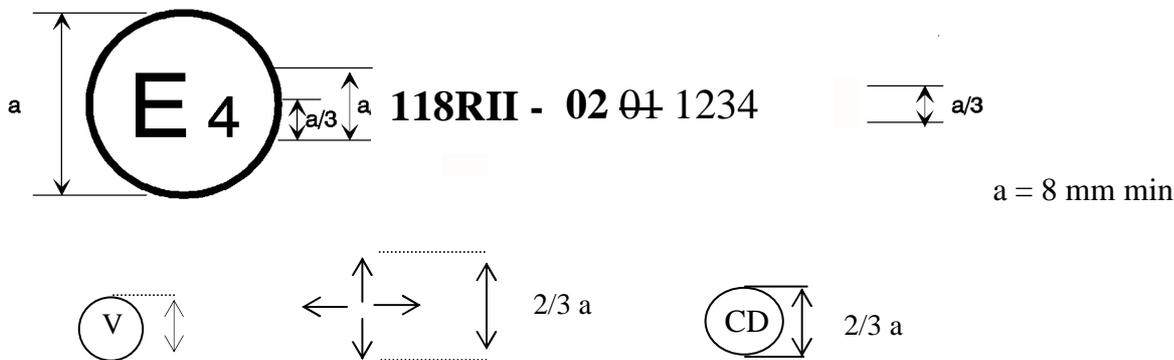


a = 8 mm min

The above approval mark affixed to a vehicle shows that the type concerned was approved in the Netherlands (E4) pursuant to Part I of Regulation No. 118 under approval No. 01 021234. The first two digits (01 02) of the approval number indicate that the approval was granted in accordance with the requirements of the 01 02 series of amendments to Regulation No. 118.

Example 2

(see part II of this Regulation)



The above approval mark affixed to a component shows that the type concerned was approved in the Netherlands (E4) pursuant to Part II of Regulation No. 118 under approval number 01 021234. The first two digits (01 02) of the approval number indicate that the approval was granted in accordance with the requirements of the 01 02 series of amendments to Regulation No. 118.

The additional symbol...”

Annex 6, Paragraphs 1.2., amend to read:

“1.2. The samples shall be taken from the material under test. In materials having different burning rates in different material directions, each direction has to be tested. The samples are to be taken and placed in the test apparatus so that the highest burning rate will be measured. When the material is supplied in widths, a length of at least 500 mm shall be cut covering the entire width. From this the samples shall be taken so as to be at least 100 mm from the material edge and equidistant from each other. Samples shall be taken in the same way from finished products, when the shape of the product permits. When the thickness of the product is more than 13 mm, it shall be reduced to 13 mm by a mechanical process applied to the side which does not face the ~~respective occupant~~ compartment (**interior, engine or separate heating compartment**). If it is impossible, the test shall be carried out, in accordance with the Technical Service, on the initial thickness of the material, which shall be mentioned in the test report.

Composite materials (see paragraph 6.1.3.) shall be tested as if they were of uniform construction. In the case of materials made of superimposed layers of different composition which are not composite materials, all the layers of material

included within a depth of 13 mm from the surface facing towards the **respective passenger** compartment shall be tested individually.”

Annex 7, Paragraphs 3., amend to read:

“3. Samples

The test samples shall measure: 70 mm x 70 mm. Samples shall be taken in the same way from finished products, when the shape of the product permits. When the thickness of the product is more than 13 mm, it shall be reduced to 13 mm by a mechanical process applied to the side which does not face the **respective occupant** compartment (**interior, engine or separate heating compartment**). If it is impossible, the test shall be carried out, in accordance with the Technical Service, on the initial width of the material which shall be mentioned in the test report.

Composite materials (see paragraph 6.1.3. of the Regulation) shall be tested as if they were of uniform construction.

In the case of materials made of superimposed layers of different composition which are not composite materials, all the layers of material included within a depth of 13 mm from the surface facing towards the **respective passenger** compartment (**interior, engine or separate heating compartment**) shall be tested individually.

The total mass of the sample to be tested shall be at least 2 g. If the mass of one sample is less, a sufficient number of samples shall be added.

If the two faces of the material differ, both faces must be tested, which means that eight samples are to be tested. The samples and the cotton wool shall be conditioned for at least 24 hours at a temperature $23^{\circ} \text{C} \pm 2^{\circ} \text{C}$ and a relative humidity of $50 + 5$ per cent and shall be maintained under these conditions until immediately prior to testing.”

Annex 8, Paragraph 3.1., amend to read:

- “3.1. The samples dimensions are: 560 x 170 mm.
If the dimensions of a sample to not permit taking a sample of the given dimensions the test shall be carried out, in accordance with the Technical Service, on the fitted size of the material which shall be mentioned in the test report.”

Insert a new paragraph 3.3., to read:

- “3.3. **When the thickness of the sample is more than 13 mm, it shall be reduced to 13 mm by a mechanical process applied to the side which does not face the respective compartment (interior, engine or separate heating compartment). If it is impossible, the test shall be carried out, in accordance with the Technical Service, on the initial thickness of the material, which shall be mentioned in the test report. Composite materials (see paragraph 6.1.3.) shall**

be tested as if they were of uniform construction. In the case of materials made of superimposed layers of different composition which are not composite materials, all the layers of material included within a depth of 13 mm from the surface facing towards the respective compartment shall be tested individually.”

Paragraphs 4.3. to 4.7., amend to read:

- “4.3. The specimen shall be placed **(after the reward marker threads have been located)** on the pins of the test frame, making certain that the pins pass through the points marked off from the template and that the specimen is at least 20 mm removed from the frame. The frame shall be fitted on the support so that the specimen is vertical.
- 4.4. The marker threads shall be attached horizontally in front **of and behind** of the specimen at the locations shown in figure 1. At each location, a loop of thread shall be mounted so that the two segments are spaced 1 mm and 5 mm from the **front and rearface** ~~plane of the front~~ of the specimen.
Each loop shall be attached to a suitable timing device. Sufficient tension shall be imposed to the threads to maintain ~~its~~ **their** position relative to the specimen.
- 4.5. The flame shall be applied to the specimen for 5 seconds. Ignition shall be deemed to have occurred if flaming of the specimen continues for 5 seconds after removal of the igniting flame. If ignition does not occur, the flame shall be applied for 15 seconds to another conditioned specimen.
- 4.6. If any result in any set of three specimens exceeds the minimum result by 50 per cent, another set of three specimens shall be tested for that direction or face. If one or two specimens in any set of three specimens fail to burn to the top marker threads, another set of three specimens shall be tested for that direction or face.
- 4.7. The following times, in seconds, shall be measured:
- (a) from the start of the application of the igniting flame to the severance **of one** of the first marker threads (t_1);
 - (b) from the start of the application of the igniting flame to the severance **of one** the second marker threads (t_2);
 - (c) from the start of the application of the igniting flame to the severance **of one** the third marker threads (t_3).”

Insert a new paragraph 4.8., to read:

- “4.8. **If the sample does not ignite or does not continue burning after the burner has been extinguished or if the flame extinguishes before the destruction of one of the first marker threads occurred, so that no burning time is measured, the burning rate is considered to be 0 mm/min.”**

Insert a new paragraph 4.9., to read:

“4.9. If the sample does ignite and the flames of the burning sample do reach the height of the third marker threads without destroying the first and second marker threads (e.g. due to material characteristics of thin material sample), the burning rate is considered to be more than 100 mm/min.”

Paragraph 5., amend to read:

“5. Results

The observed phenomena shall be written down in the test-report, to include:

- (i) the durations of combustion: t_1 , t_2 and t_3 in seconds, and
- (ii) the corresponding burnt distances: d_1 , d_2 and d_3 in mm.

The burning rate V_1 and the rates V_2 and V_3 , if applicable, shall be calculated (for each sample if the flame reaches at least **one of** the first marker threads) as follows:

$$V_i = 60 d_i/t_i \text{ (mm/min)}$$

The highest burning rate of V_1 , V_2 and V_3 shall be taken into account.

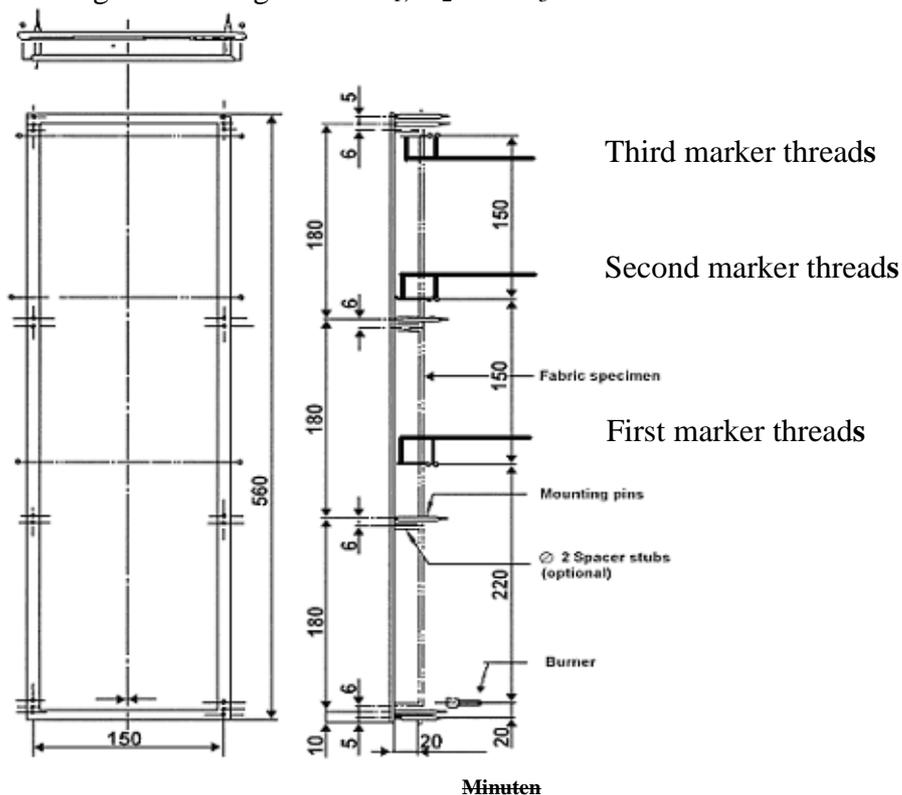


Figure 1
Specimen holder
(Dimensions in millimetres)

