

PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 104
(UNIFORM PROVISIONS CONCERNING THE APPROVAL OF RETRO-REFLECTIVE
MARKINGS FOR HEAVY AND LONG VEHICLES AND THEIR TRAILERS)

Transmitted by CLEPA

Note: The text reproduced below was prepared by the expert from CLEPA at the request of the Informal Group "Conspicuity Marking (CM)" during its third meeting in Bonn to further ensure the performance of retro-reflective markings according to Regulation No. 104. This proposal augments the draft proposal, and may be considered by GRE in conjunction with this draft proposal by the Informal Group CM to amend Regulation No. 48.

A. PROPOSAL

Amend Annex 8 - Resistance to External Agents, as follows:

Delete current paragraph 5. and insert a new paragraph 5., to read:

5. Cleaning

5.1. Manual Cleaning

5.1.2. A test sample smeared with a mixture of detergent lubricating oil and graphite shall be easily cleaned without damage to the retro-reflective surface when wiped with a mild aliphatic solvent such as n-heptane, followed by washing with a neutral detergent.

5.2. Power Washing

5.2.1. When subjected to a continuous spraying action for 60 seconds, a test sample shall show no damage to the retro-reflective surface or delaminate from the substrate under the following set-up parameters:

- Maximum water/wash solution pressure 80 bar
- Maximum water/wash solution temperature 60°C
- The tip of the cleaning wand to be positioned at a minimum of 600 mm away from the material
- Cleaning wand to be held at no greater angle than 45 degrees from perpendicular to the retro-reflective surface
- 40 degree nozzle creating wide fan pattern

Insert a new paragraph 8., to read:

8. Bonding Strength (in the case of adhesive materials)

- 8.1. The adhesion of retro-reflective materials shall be determined after 24 hours curing time by utilising a 90 degree peel on a tensile strength testing machine.
- 8.2. The retro-reflective materials shall not be easily removable without damaging the material.
- 8.3. The retro-reflective materials shall not be removable from their substrate when subjected to a force of less than 10 N per 25 mm width, at a constant speed of 300 mm per minute.

B. JUSTIFICATION

1. Currently, the tests contained in Annex 8 of Regulation No. 104 do not include performance requirements for adhesion strength of conspicuity markings or resistance to power washing, which is the industry standard. This proposal remedies this situation.
2. At a third meeting of the Informal Group "Conspicuity Markings CM," CLEPA was requested to prepare a proposal to amend Regulation No. 104 to enhance the above Regulation and further ensure proper performance of conspicuity markings, as installed on vehicles and their trailers.
3. GRE may wish to consider this proposal in conjunction with the draft proposal from the Informal Group CM to amend Regulation No. 48 for mandatory fitment of conspicuity markings on certain categories of vehicles and their trailers.
