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**Working Party on the Transport
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PROPOSALS OF AMENDMENTS TO ANNEXES A AND B OF ADR

Sub-section 9.2.2.6.1 of Annex B to the ADR

Requirements concerning wiring

Transmitted by the Government of Germany

SUMMARY

Executive Summary:	It is proposed to replace the figures in 9.2.2.6.1 of the ADR by referring to relevant standards.
Action to be taken:	In paragraph 9.2.2.6.1: amend the current text (including the figures) to read as shown under "Proposals".
Related documents:	---

Introduction

In 9.2.2.6.1 of the ADR, figures are shown which are to be considered as appropriate within the meaning of the requirements on wiring as described there. They were used in the absence of appropriate standards. It was intended to replace the exemplary enumeration after the elaboration of appropriate standards.

The examples do not deliberately exclude other solutions, but there is some disagreement with regard to the equivalence of other options.

By referring to relevant standards, the designers have, on the one hand, sufficient scope for the development of appropriate options. On the other hand, the requirements which have to be applied to the wiring can be more explicitly and comprehensively described by standards than is possible by using exemplary figures.

Proposal

In paragraph 9.2.2.6.1 amend the current text (including the figures) to read as follows:

"9.2.2.6.1 Wiring

The wiring located to the rear of the driver's cab shall be protected against impact, abrasion and chafing during normal vehicle operation. This requirement is deemed to be complied with if the wiring corresponds to ISO standard 6722:<year>, with the proviso that the abrasion resistance has to be determined in accordance with ISO 6722:<year> Part 2 and the residual wall thickness of the insulation is still at least 60% of the initial wall thickness after 1000 cycles."

Justification

Following international standards defining the requirements concerning wiring, it is proposed to determine criteria for the following properties which have to be complied with by the wiring of EX/III and FL vehicles:

- Flame resistance
- Chemical resistance
- Abrasion resistance
- Aging stability
- Impact resistance
 - resistance at low temperature
 - resistance at high temperature.

For these properties, ISO 6722 contains test methods and limit values. The standard does, however, not define a limit value for abrasion resistance. This is left to be agreed between the manufacturer and the user.

In order to test the abrasion resistance, ISO 6722 contains a procedure where a needle rubs over the insulation of the conductors until there is only 60% of the initial insulation thickness left.

During tests made in accordance with ISO 6722, 250 test cycles were reached at wiring jacketed with PVC and 3200 cycles at wiring with PVC-PU insulation (inside – outside). Afterwards both cables had each still a residual wall thickness of 60% of the initial insulation thickness.

According to a former DIN draft standard, cables for vehicles carrying dangerous goods were subjected in Germany to a comparable test with 1000 stress cycles. Afterwards still 60% of the initial thickness of the insulation wall had to be preserved. This requirement can, therefore, be considered as realistic and proven.

Safety implications

A more definite regulation will lead to a more uniform safety level.

Feasibility

The standards referred to are known to the relevant industries (the manufacturers and users of wiring, vehicle manufacturers) and are also used.

Enforceability

No problems are seen.
