

Economic Commission for Europe

Inland Transport Committee

Working Party on the Transport of Dangerous Goods

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Item 7 of the provisional agenda

Reports of informal working groups

Comments on ECE/TRANS/WP.15/AC.1/2013/42 – test periods for packing instruction P200

Submitted by the Government of the United Kingdom

Introduction

1. The UK appreciates all the work done by EIGA and the members of the working group on this issue, but is not yet entirely reassured about the safety of extending the test interval from 10 to 15 years. Moreover, we have specific concerns about some aspects of the proposal, as detailed below.
2. This is a significant change in the way gas cylinders are maintained and it is vital that the change is controlled, cautious and has clearly defined boundaries.

Discussion

3. **Bundles:** The UK is not satisfied that the inclusion of bundles has been considered in sufficient depth. Application of the 15 year period is restricted to bundles “constructed such that contact between cylinders along the longitudinal axis of the cylinders does not result in external corrosion.” This is essential since the parallel portion of most of the cylinders will be invisible unless the bundle is dismantled. However, there is no restriction on other parts of the bundle structure such as holding straps from being in contact with the cylinders. This issue is addressed in the following extract from EN 13807:2003 *Transportable gas cylinders — Battery vehicles — Design, manufacture, identification and testing*.

The supports and holding down straps shall be such as to minimise the risk of corrosion to the elements. Absorbent materials used in supports shall only be allowed if they have been treated to eliminate water absorption.

NOTE Examples of suitable materials are water resistant belting and rubber.

The construction standards for bundles referenced in RID/ADR (EN ISO 10961 and EN 13769) do not cover these details of construction. Additionally, bundles made of cylinders mounted horizontally should be excluded from the 15 year period because moisture lying on the thinnest part of the cylinder could endanger safety. Until these details are addressed, bundles should be excluded from this proposal.

4. **Aluminium cylinders:** Paragraph 16 (c) of paper 2013/42 states:

“... internal corrosion is mainly an issue caused by moisture with oxidising and acidic gases such as oxygen and carbon dioxide filled in steel cylinders, this requirement applies in this proposal to all gases filled in steel cylinders. Aluminium alloy cylinders do not require to be fitted with residual pressure valves as they are less sensitive to such corrosion.”

This justification for excluding aluminium cylinders from the requirement for RPVs is based solely on the fact that they are less sensitive to corrosion caused by moisture in oxygen and carbon dioxide, but there are other contaminating substances which can corrode aluminium. Steel cylinders carrying gases other than oxygen and CO₂ are less sensitive to corrosion due to moisture but are fitted with RPVs, it is therefore illogical to allow aluminium to go without this protection. More evidence is needed on the resistance of aluminium to all likely contaminants before the UK can agree to the omission of RPVs on these cylinders.

5. **Mixtures:** Paragraph 16 (a) states that the application of the special packing provision is limited to gases of 1A, 1O, 1F and three named high pressure liquefied gases. However, the inclusion of the entries UN 1954 Compressed gas, flammable, N.O.S, UN 1956 Compressed gas, N.O.S. and UN 3156 Compressed gas, oxidizing, N.O.S. allows all other gases to be filled into these cylinders, so long as the concentration is not too high to change the classification. At this stage in the development of the technology, the UK believes that these three entries should have their own special packing provision limiting application of ‘va’ to mixtures composed only of gases allocated ‘va’ in tables 1 or 2.

6. **Qualification of cylinders:** The UK is opposed to accepting the methodology outlined in paragraph 32 of the paper and paragraph 3.1 of the proposed new text. We recognise that the valuable experience that justifies this scheme has been gathered over many years of operating according to the conditions described in the methodology. But this experience has been backed by ten year inspections, and to extend the period for a further five years requires the confidence of the competent authorities that every element is under control. By granting immediate operation of the scheme, the competent authority would have to approve the existing quality assurance scheme and accept the surveillance findings of an inspection body not formally approved by it for this scheme. It would also require the acceptance of assurances that the filling and gas quality has been under control for ten years previously. In our opinion, this is asking for too much judgement and investigation into historical reports. The UK believes that competent authorities should not allow the extension of the period between tests on any cylinder unless it has been established that it is in a known safe condition; that is, it has passed periodic inspection. Therefore we propose that cylinders shall only be accepted for 15 year testing and application of “P15Y” mark at the time of periodic inspection or, in the case of new cylinders, at initial inspection and test.

7. **UN cylinders:** UN cylinders should explicitly be excluded from the 15 year period. The periodic inspection requirements for UN cylinders are decided by the UN Sub Committee of Experts and should not be changed by the Joint Meeting.

8. **Purity and moisture requirements:** Reference is made to EN 14175; this should read EN ISO 14175. This standard covers 6 of the named gases, but for the others the user is asked to apply ‘or equivalent’. How is equivalence to be judged? The UK would like to see default figures given for minimum purity and maximum moisture for those gases not covered by EN ISO 14175.

9. **Miscellaneous errors or shortcomings in the proposed text.**

(a) Standards shall be dated.

(b) The definition of RPV in the NOTE in ‘va’ should say “... device prevents the ingress of contaminants ...” instead of “... device prevents moisture ingress ...”.

- (c) ISO 7866 should be removed from paragraph 1.3 since it is not in the table 6.2.4 and is only applicable to UN cylinders.
- (d) The corrective action required in 2.3 should be specified in more detail. It is suggested that the final bullet be amended as follows.
- “If the check shows that the residual pressure device has not retained pressure, the internal condition of the cylinder or bundle shall be checked for contamination:
 - If no contamination is detected, the cylinder or bundle may be filled following repair or replacement of the RPV:
 - If contamination is detected, a corrective action shall be carried out.”

Proposals to amend the text

10. **Bundles:** Delete text concerning bundles in ‘ua’, ‘va’, the first sentence of (13), 1.4 (whole paragraph), 2.2, 2.3, 2.7, 3.1, 3.4 and 4.

11. **Aluminium alloy cylinders:** Delete ‘ua’ (whole paragraph) and delete ‘ua’ for each of the entries in Table 1 and Table 2. In ‘va’ insert ‘and aluminium alloy’ between ‘steel’ and ‘cylinders’. Delete paragraph 2.2.

12. **Mixtures:** Add the following text after ‘va’:

‘vb special packing provision ‘va’ may be applied provided all the gases in the mixture have been allocated ‘va’ in Table 1 or Table 2 and the purity requirements of Paragraph (13), sub paragraph 2.7 are satisfied.’

Replace ‘va’ by ‘vb’ in Table 1 for the entries UN 1954 Compressed gas, flammable, N.O.S, UN 1956 Compressed gas, N.O.S. and UN 3156 Compressed gas, oxidizing, N.O.S..

13. **Qualification of cylinders:** Amend paragraph 3.1 as follows.

3.1 “For cylinders [and bundles of such cylinders] already in use, ~~for which the conditions of sub paragraph 2 have been met from the date of the last periodic inspection to the satisfaction of the competent authority, may have their inspection period extended to 15 years from the date of the last periodic inspection. Otherwise~~ the change of test period from ten to fifteen years shall be made at the time of periodic inspection.”

14. **UN cylinders:** Insert the following sentence at the end of paragraph 1.3.

“Cylinders marked with the United Nations packaging symbol specified in 6.2.2.7.2 (a) shall not be granted a 15 year interval for periodic inspection.”

15. **Purity and moisture requirements:** Amend the end of the final sentence of paragraph 2.7 as follows with default figures for purity and moisture to be agreed.

“... the specifications in EN 14175 or, ~~equivalent~~ for gases not covered in the standard, a minimum purity of [99.5%] by volume and a maximum moisture content of [40] ml/m³.”