

## Economic Commission for Europe

### Inland Transport Committee

#### Working Party on the Transport of Dangerous Goods

20 March 2014

#### Joint Meeting of the RID Committee of Experts and the Working Party on the Transport of Dangerous Goods

Bern, 17-21 March 2014

Item 5 (a) of the provisional agenda

#### Proposals of amendments to RID/ADR/ADN: pending issues

### **Amendments regarding the document ECE/TRANS/WP.15/AC.1/2014/31: Periodic inspection and test of some transportable refillable LPG steel cylinders in RID/ADR.**

#### **It supercedes and replaces INF 52.**

#### **Transmitted by the European Liquefied Petroleum Gas Association (AEGPL)**

In order to answer additional received comments during the consultation phase, the proposal points 6 to 13 of the document ECE/TRANS/WP.15/AC.1/2014/31 are revised as below. The paragraphs regarding general specific provisions is been considered separately in proposal 3. The specific provisions for over-moulded cylinders have been moved in a specific provision and the sampling method has became more severe.

As some standards are currently under revision, in order to take into account previous discussions during Joint Meetings, it is clear that the proposal cannot be formally accepted during this March 2014 session of the Joint Meeting, but it is believed that the text can be already accepted in order to have acceptance of the revised standards by the Working Group Standard during next Joint Meetings.

The changes from document ECE/TRANS/WP.15/AC.1/2014/ are underlined. The sentence in square brackets are explanations.

#### **Proposal 1:**

1. Add the following definition in 1.2.1:  
“Over-moulded cylinder, means a cylinder intended for the carriage of LPG of a water capacity not exceeding 13 litres made of a coated steel inner pressure receptacle with an over-moulded protective case made from cellular plastic which is non removable and bonded to the outer surface of the inner receptacle wall”.
2. Add “over-moulded cylinders” in the existing definition of “Pressure receptacle” under 1.2.1.,.
3. Insert ‘6XY’ in column (6) of the Dangerous Goods list for the entries for UN numbers 1011, 1075, 1965, 1969 and 1978.

4. Add elementary design information in 6.2.3.5.3 [non UN receptacles]:

[This paragraph was originally proposed in 6.2.1.1.10. Requirements regarding the over-moulding material and test to be performed at design and construction have been added in the LPG standard design EN1442 and EN14140.]

Add a paragraph 6.2.3.5.3 *additional requirement for the construction of over-moulded cylinders*

Over-moulded cylinders shall be produced serially and be based on steel cylinders in accordance with EN1442, EN14140 or annex I, parts 1 to 3 to Council Directive 84/527/EEC. Each cylinder shall be fitted with an individual resilient identification electronic tag or an equivalent device linked to an electronic database. The design of the over-moulding case shall prevent water penetrating to the inner steel cylinder. The design and construction shall conform to the relevant requirements of EN 1442:[2016] and EN 14140:[2014].

## Proposal 2:

5. Insert the following special provision in 3.3.1

6XY This entry applies to over-moulded cylinders as defined in 1.2.1.

[The paragraph below was originally proposed in P200]

The owner shall demonstrate to the satisfaction of the competent authority that the over-moulded cylinders are only filled in filling centres applying a documented quality system and that the requirements of EN1439:2008 are fulfilled and correctly applied. The owner shall provide documentary evidence to the competent authority that the filling centre complies with these requirements.

[The paragraph below was originally proposed in point j) of 6.2.3.5.4]

If during the visual external prefill inspection, the outer surface of an over-moulded cylinder is not free from material gouges, cuts or cracks that may harm the protection against corrosion of the inner steel pressure receptacle as defined in EN1439:2008 annex G, the over-moulding case shall be removed; a reuse of the inner receptacle for over-moulding is permitted or the cylinder is removed from service.

[The paragraph below was originally proposed in point f) of 6.2.3.5.4 and the sentence has been reworded]

~~The frequency of the controls of each production group is after 3 years in service and then every 5 years thereafter.~~

~~In accordance with 6.2.3.5.3~~ Periodic inspection shall ~~can~~ be performed by sampling of an annual production group of cylinders after 3 years in service and thereafter every 5 years.

[The paragraph below was originally proposed in point b) of 6.2.3.5.4 and the words have been re-ordered to facilitate the undersanding]

~~A group of over moulded cylinders is defined as cylinders with the steel inner pressure receptacle manufactured within a calendar year by single manufacturer and over moulded by a single over moulding company.~~

An annual production group of over-moulded cylinders is defined as the production of cylinders from a single over-moulding company using inner cylinders manufactured by one manufacturer within one calendar year.

[The paragraph below was originally proposed in point d) of 6.2.3.5.3. As paragraphs originally proposed in 6.2.3.5.3 are transferred in proposal 3, the paragraph d) has been added below]

Following failure of an annual production group to meet the requirements of its periodic inspection further use of parts of the group (sub-groups) can be allowed by the competent authority authorizing the original type approval if it has been demonstrated without doubt that the cause of the periodic inspection failure is known and not valid for the other parts of the group (sub-groups).

[The requirement below was originally proposed in point d) and point e) of 6.2.3.5.4]

The following procedures shall replace the requirements of 6.2.1.6 a) and d).

[The paragraph below was originally proposed in point d) of 6.2.3.5.4 and the first sentence has been removed as explanations are not given in regulations. The reference of the periodic inspection standard has been updated as EN1440 is under revision to be splitted into two parts.]

- (a) ~~The check of the external conditions of over moulded cylinders in accordance with 6.2.1.6.1 (a) can be performed on the outer surface of the cellular plastic case but not on the outer surface of the inner pressure receptacle. Therefore~~ Destructive adhesion tests and peeling tests shall be performed on two samples per group to check that there is no external corrosion on the inner receptacle wall and the cellular plastic case keeps its adhesive properties with time using the method specified in annex F of ~~EN1440-EN16728: [2015]~~. The minimum size of the sampling shall be 5 cylinders for the adhesion test and 10 cylinders for the peeling test.

[The paragraph below was originally proposed in point e) of 6.2.3.5.4 and the first sentence has been removed as explanations are not given in regulations. The reference of the periodic inspection standard has been updated as EN1440 is under revision to be splitted into two parts.]

- (b) ~~The hydraulic pressure test in accordance with 6.2.1.6.1 (d) may lead to a crack of the inner receptacle which is not recognizable as leakage. Therefore~~ The hydraulic pressure test of 6.2.1.6.1 (d) shall be substituted by a burst test on one sample per group in accordance with annex F of ~~EN1440-EN16728: [2015]~~. The minimum size of the sampling shall be 20 cylinders. The result of burst tests shall be in accordance with the unilateral statistical tolerance interval of ISO 16269-6:2005 for a confidence level of 95% and a fraction of population equal to 99% as described in annex F of ~~EN1440-EN16728: [2015]~~.

[The paragraph below was originally proposed in point h) of 6.2.3.5.4]

- (c) If the burst test or peeling test fails, the tests shall be repeated considering sub-groups to define the sub-group(s) with a manufacturing defect. The defective annual production group or sub-group(s) ~~with defect~~ shall be withdrawn immediately after detection using the electronic tag.

[The paragraph below was originally proposed in point i) of 6.2.3.5.4]

- (d) If the result of the adhesion test does not comply with the criteria for at least one test, ~~a second sampling of the same size is made. If at least one result of the second sampling does not comply with the minimum value of the adhesion criteria~~ the tests shall be repeated considering sub-groups to define the sub-group(s) with a manufacturing defect. The defective annual production group or sub-group(s) shall be withdrawn immediately after detection using the electronic tag.

[The paragraph below was originally proposed in point g) of 6.2.3.5.4]

- (e) The test results shall be ~~monitored~~ recorded and kept available by the owner of the over-moulded cylinders for 30 years.

All other provisions of RID/ADR shall apply.

- 6. Remove the exclusion of clause 3.5 and of annex G for EN 1439:2008 in the table in point 11 in P200.

[Proposal 3 below was originally proposed in 6.2.3.5.3]

### **Proposal 3:**

- 7. Add a new paragraph 6.2.3.5.4 as follows:

#### 6.2.3.5.4 Hierarchy in substitution of retest methods ~~General specific provisions~~

- (a) If inherent properties of a design prevent the successful performance of one or more checks required in 6.2.1.6.1 (a) to (e) for periodic inspection or the successful evaluation of its test results, a method of non-destructive-testing is allowed in accordance with one of the notes of 6.2.1.6.1.
- (b) If none of the available methods of non-destructive testing is appropriate as an alternative for the testing of each pressure receptacle for a certain design, a testing method shall be defined ~~used~~ which enables the surveillance of degradation of groups of pressure receptacles of this design by destructive testing of samples of each group. Each pressure receptacle of such a group shall be marked (e. g. by identification electronic tag) in such a way that it can be easily retraced to its relevant group prior to each pre-fill inspection and periodic inspection.
- (c) The testing method is defined by the destructive tests to be performed, the sample size, the statistical assessment of the results, the criteria to be met and the frequency of the tests. In case of evaluation of residual burst or fatigue strength properties, the confidence level of a sample shall be defined by the competent authority or by a periodic inspection standard referenced in 6.2.4, considering the potential consequence of a receptacle failure. The test shall be performed on an adequate sample of receptacles and the periodicity of the tests shall ensure the detection of loss of properties of the receptacle before they may become critical.
- (d) If the surveillance of degradation shows insufficient properties, the group is considered to have failed the periodic inspection and shall be taken out of service. A further use of parts of the relevant groups (sub-groups) can be allowed by the competent authority authorizing the original approval if it has been demonstrated without doubt that the cause of the periodic inspection failure is known and not valid for the other parts of the group (sub-groups).

- (e) An individual periodic inspection check ~~shall~~ ~~can~~ only be replaced by a test by sampling for a certain design of receptacle if the testing method is described in special provision 6XY of 3.3.1 in 6.2.3.5.

---

List of refered standards:

- EN 1442:[2016], LPG equipment and accessories - Transportable refillable welded steel cylinders for LPG - Design and construction;
- EN 1439:2008, LPG equipment and accessories. Procedure for checking LPG cylinders before, during and after filling;
- EN 14140 [2014], LPG equipment and accessories. Transportable refillable welded steel cylinders for LPG - Alternative design and construction;
- EN16728: [2015]., LPG equipment and accessories. Transportable refillable LPG cylinders other than welded and brazed steel cylinders: periodic inspection.