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Economic Commission for Europe**Inland Transport Committee****Working Party on the Transport of Dangerous Goods****Joint Meeting of the RID Committee of Experts and the
Working Party on the Transport of Dangerous Goods**

Geneva, 13–17 September 2010

Item 6 of the provisional agenda

Reports of informal working groups**Informal working group on the periodicity of testing of
cylinders****Submitted by the Government of Germany on behalf of the Working
Group^{1, 2}****Background**

1. By document OTIF/RID/RC/2009/22 (ECE/TRANS/WP.15/AC.1/2009/22), the Joint Meeting was informed of the meeting of the informal working group on periodicity of testing of cylinders, which met in Potsdam (Germany) on 9 and 10 March 2009. Amendments were proposed to introduce a harmonized regime for the extension of the interval for periodic inspections for welded steel cylinders for Liquid Petroleum Gases (LPG).
2. The amendments were adopted with some modifications and will enter into force on 1 January 2011 (see sub-section 4.1.4.1, packing instruction P 200, new paragraph 12, and related consequential amendments). However, some issues discussed during the four meetings of the informal working group were brought to the attention of the Joint Meeting to decide on appropriate further action. The Joint Meeting mandated the working group to continue its deliberations on such issues and to present proposals as appropriate (see report

¹ In accordance with the programme of work of the Inland Transport Committee for 2006-2010 (ECE/TRANS/166/Add.1, programme activity 02.7 (c)).

² Circulated by the Intergovernmental Organisation for International Carriage by Rail (OTIF) under the symbol OTIF/RID/RC/2009/48.

of the Joint Meeting in September 2009, document ECE/TRANS/WP.15/AC.1/116, paras. 31 to 37).

I. General information

3. The informal working group met again on 2 and 3 February 2010 in Munich (Germany), hosted by Linde Gas Company. Delegates from Belgium, France, Germany, Norway, Switzerland, and from AEGPL and EIGA attended the meeting. An overview of the issues tackled and the results achieved was already given to the Joint Meeting in March 2010 (informal document INF. 9).

4. The informal working group could discuss all issues covered by the mandate and find solutions on all remaining issues. For some of the issues, the informal working group agreed on the proposals listed below; concerning further issues given to the group, no amendment for RID/ADR/ADN (versions 2009 and 2011) was deemed necessary.

II. Detailed information

5. As far as not specifically addressed in the next paragraphs, the proposals were agreed unanimously by the working group and the reasoning is given separately to each proposal and the discussion is not included in this document in detail.

III. Fifteen year interval for other types of cylinders

6. As far as the intention of extending the interval for periodic inspection of types of cylinders other than welded steel cylinders for LPG is concerned, the working group after intensive discussion came to the following conclusions:

(a) P 200 (10) v currently also covers welded steel cylinders for flammable gases other than those to be considered LPG. So the question was, whether the interval could be extended to 15 years as well. As the working group was not aware of any country having used this clause also for such gases and as no experience of such practice is documented, there was no basis for a positive approach to that issue. As the working group had started its work about the interval for welded steel cylinders for LPG on the basis of an analysis of existing national solutions, applications and experience, it was decided not to move ahead with this issue;

(b) Intervals for periodic inspection of composite cylinders currently are not harmonized (see P 200 (8)) and they are also not covered by the mandate given by the Joint Meeting. The issue therefore was not discussed;

(c) Concerning welded or stainless steel cylinders and aluminium cylinders, the working group could not gather any information about experience documented with such cylinders which could form the basis of a reasonable discussion towards a solution. It was mentioned that stainless steel cylinders for LPG are manufactured for a 15 year period only, so no sufficient experience is documented about their ability to be safe even with a 15 year testing interval. Steel cylinders for other gases currently are under evaluation by EIGA, whether there is sufficient experience and evidence for a reasonable discussion on a potential extension of the interval to 15 years. So at present, any further discussion is not justified. As far as aluminium cylinders are concerned, it was known to some participants of the working group, that such cylinders are used in some countries, but with a 10 year testing interval,

that such cylinders are produced by few manufacturers and not in such high numbers as for example welded steel cylinders for LPG, and that no experience about the ability for any prolonged testing interval for aluminium cylinders is documented. Some participants added that aluminium cylinders are more likely to be affected by water contamination resulting in corrosion risks and that therefore any further approach to this issue should be of a careful nature.

7. The working group agreed, that these issues may only be reconsidered, when a need for action and sufficient experience for a discussion will be documented. It is suggested to the Joint Meeting not to pursue such issues as long as necessary documentation is not presented.

IV. Inspection and refurbishment of valves

8. The issue of inspection and refurbishment of valves fitted to cylinders also was subject to an extensive discussion. It was highlighted, that although the current provisions of RID/ADR do not specifically address periodic inspection of valves, the standards EN 14912:2005 (for LPG cylinders) and EN 14189:2003 (for cylinders for industrial gases) are referenced in the table in 6.2.4.2 (RID/ADR 2011) as applicable standards for periodic inspection. On the international level, ISO 22434:2006 for inspection of valves for cylinders for industrial gases is existing, but at present is neither referenced in the UN Model Regulations, section 6.2.2, nor in RID/ADR 2011, table in 4.2.4.2.

9. Participants working for LPG industry pointed out, that inspected and refurbished valves are widely used in Spain, France and some other European countries. This is mainly applied to manually operated valves of long life design and construction featuring a high value per valve. In some other countries like Germany, Switzerland and the United Kingdom, any valve (manually or automatically operated) is exchanged at the time of periodic inspection and neither inspection nor refurbishment currently are common practice.

10. It was clarified, that inspection and refurbishment according to the standards mentioned is quite different from the visual inspection of a valve during a pre-fill inspection according to P 200. Meanwhile the valve remains fitted to the cylinder during a pre-fill inspection, a valve intended for an inspection or refurbishment according to EN 14912 or EN 14189 is demounted from the cylinder. For such an inspection, some worn-out parts may be changed, the valve is not dismantled. Refurbishment is linked to major maintenance, dismantling and repair or exchange of interior parts of the valve.

11. It was further explained that a valve demounted from a cylinder first is visually inspected, followed by a more detailed inspection with minor repair and – if necessary – by a major repair and refurbishment. So such inspection and refurbishment is not part of the usual periodic inspection process, but is generally done by a separate entity being neither the manufacturer nor the inspection body or testing facility.

12. As a consequence, the working group came to the conclusion that currently there is a lack of clarity and responsibility within the provisions of RID/ADR and that these issues – including aspects of quality and marking of inspected or refurbished valves should be addressed by an amendment to propose for adoption. Such an inspection should be compared to the task of a periodic inspection and such refurbishment should be compared to the procedure of (re-) manufacture linked to (re-)assessment of conformity.

13. Inspection and refurbishment should be carried out either by the manufacturer of the valve or according to his advice by a qualified enterprise operating a documented quality system approved and monitored by a Type-A-body. For enterprises carrying out the

inspection, the requirements for the quality system should be applied as for an in-house-inspection service and for enterprises carrying out refurbishment as for a manufacturer.

14. It was mentioned that currently neither RID/ADR nor the two standards EN 14912 and EN 14189 provide for a limit, so at least in theory a valve could be inspected and/or refurbished according to both standards for an unlimited number and time. It was questioned whether this could lead to a safety risk in the longer term, especially if such methods would become common practice all over RID/ADR over time, and if there should be a limiting provision.

15. It was agreed to bring this question up to the attention of the Joint Meeting to discuss and decide as appropriate.

V. Definition of LPG

16. The proposal to include a definition for LPG in 1.2.1 of RID/ADR was agreed unanimously; a consequential amendment for clarification of the assignment of LPG and the technically pure gases of that group, which are also distributed as such, was adopted as well. While discussing the need for any further consequential amendments, the Working Group felt somewhat uncomfortable when checking P 200 (10) gas specific provision ta.

17. First it was mentioned that provision ta only is applicable to ADR. There is no similar provision in RID. Second it was discovered that provision ta is making reference no special filling conditions applied by the national competent authority for transport within the country of that authority and additionally requires a technical code or standard accepted by the national competent authority.

18. The working group felt this to be a solution no longer justified with regard to harmonisation of provisions (especially sections 1.8.6, 1.8.7. and chapter 6.2 of RID/ADR) and with regard to the free marketing with the European Union according to Directive 1999/36/EC, as amended (TPED directives).

19. While this was not seen as being covered by its mandate, the working group agreed to highlight this issue to the Joint Meeting to decide on any further action as appropriate.

VI. Requirements for filling centres, owners and operators

20. P 200 (7) addresses pre-fill inspections to be carried out at each refilling of a cylinder by qualified enterprises providing skilled personal and applying suitable controls and procedures; suitable standards for application are listed in P 200 (11).

21. In comparing the English, French and German text of P 200 (7) it was unclear to several participants whether the wording “may only be ...” really are as stringent as the French wording “ne peut être effectué que ...” and the German wording “darf nur ...”. There was a clear view, that the provisions of P 200 (7) shall be applied mandatorily and that only the application of the standards listed in P 200 (11) currently is not mandatory.

22. The Joint Meeting is invited to check the issue and provide for clarity of the provisions in all languages.

23. It was also pointed out, that similar provisions currently do not exist in P 200 of the UN Model Regulations and that therefore it may be deemed unclear whether P 200 (7) and (11) of RID/ADR are applicable to UN-pressure receptacles of 6.2.2 or to “RID/ADR receptacles” according to 6.2.3, 6.2.4 or 6.2.5 only. At least within the sea-mode, no such provisions need to be applied. The Joint Meeting is invited to care for clarification and to

decide whether this issue should be addressed to the UN Sub-Committee of Experts on the Transport of Dangerous Goods.

VII. Amendments proposed

24. The Working Group agreed on the following amendments and invites the Joint Meeting to decide as appropriate.

A. Proposal to amend section 1.2.1

Proposal: The Working Group proposes to introduce a definition for “Liquefied Petroleum Gas (LPG)” in section 1.2.1 to read:

“*Liquefied Petroleum Gas (LPG)* – low pressure liquefied gas composed of one or more light hydrocarbons, mainly propane, propene, butane, butene and butane isomers. LPG shall be assigned to UN 1011, UN 1075, UN 1965, UN 1969 or UN 1978 only.”

Note 1: Flammable Gases assigned to other UN numbers shall not be regarded as LPG.

Note 2: For UN 1075 see note 2 in 2.2.2.3 under 2F/UN 1965.

Reasoning: The current wording of RID/ADR/ADN does not provide for a clear definition, which gases and their composition are covered by the widely used term LPG. Standards referenced in RID/ADR, especially in the tables in 6.2.4 and 6.8.2.6, dealing with LPG use various descriptions for LPG and indications of potentially applicable UN numbers. There is need for a harmonised definition linking the gases and their composition concerned with the UN numbers to be assigned to; this should be set by RID/ADR/ADN first and in consequence be inserted also in the standards concerned, especially when they are – or are intended to be – referenced in RID/ADR/ADN.

It is recognised, that such a definition may also be of interest to the UN Model Regulations, but as most of LPG transports are taking place locally or regionally (including trans-border areas), is of greater importance to be clarified on the European level.

B. Consequential amendment

Add new special provision XXX to chapter 3.3 to read:

“This entry shall be used for the technically pure substance only; for mixtures of LPG components see UN 1965 or see UN 1075 in conjunction with note 2 in 2.2.2.3.”

Add new special provision XXX to UN 1011, UN 1968 and UN 1978.

Reasoning: The definition proposed above would also lead to a better understanding and precision of the application of the UN numbers concerned, if it could be clarified which UN numbers are to be used for LPG as mixtures of the components (so-called commercial LPG – or sometimes also called commercial propane) and which are to be dedicated to technically pure butane, iso-butane and propane – as these substances are also transported as technically pure substances e.g. for technical or scientific purposes.

Currently – varying from country to country or even from company to company – both, mixtures and technically pure substances of LPG gases are assigned to all 5 UN numbers as shown in paragraph 6 above. The new special provision proposed would clarify the situation and permit a better distinction during filling, handling, transport and use.

C. Proposal to address criteria for quality (purity) of LPG

Proposal: The Working Group proposes to add criteria for purity of LPG in section 4.1.4.1, packing instruction P 200, paragraph 7; amend paragraph 7 as follows:

1. Amend the existing text to become letter (a)
2. Add a new letter (b) to read:

“(b) LPG to be filled in cylinders shall be of high quality; this is deemed to be fulfilled if the LPG to be filled is in compliance with the corrosion contaminants level of EN 1440:2008, annex E.1, letter b.”

D. Editorial consequential amendment

In section 4.1.4.1, packing instruction P 200, paragraph 12, number 2.5 amend the word “contaminates” to read: “contaminants”.

Reasoning: High quality and high purity of LPG to be free of corrosion contaminants is of importance to further protect cylinders from potential internal corrosion. As LPG are produced world-wide and will more and more be derived from oil-sources or refineries at any given place, being transported e.g. by tank-ships or rail tank cars to be filled into cylinders for local or regional distribution. It is of particular importance to separate corrosion contaminants prior to filling LPG into cylinders to avoid such contaminants and to better protect the cylinders against internal corrosion risk. This would also have positive effects on the installations intended to burn LPG delivered in cylinders.

E. Inspection, Refurbishing and fitting of valves to cylinders

Proposal: The Working Group proposes to add the following new provisions to chapter 6.2 and two consequential transitional provisions to chapter 1.6 to read:

“6.2.X Inspection, refurbishment and fitting of valves to cylinders

6.2.X.1 Cylinders shall only be fitted with valves designed and manufactured according to a standard referenced in the table to 6.2.4 (e.g. EN 13152:2001 + A1:2003 or EN 13153:2001 + A1:2003 for LPG or EN 10297 for other gases). These valves shall either be previously unused or may have been inspected or refurbished according to EN 14912:2005 or EN 14189:2003. Inspection or Refurbishment shall only be carried out by the manufacturer of the valves or an enterprise qualified for such work. In either case the work shall be carried out according to the manufacturer’s instructions under a documented quality system, approved and monitored by an Xa-inspection body according to 6.2.3.6.

6.2.X.2 For refurbishment, the quality system has to comply with the requirements of 1.8.7.3 in connection with 6.2.2.5.3. The Company carrying out the refurbishment has to verify, that the refurbished valve is of the same quality and safety standard as applicable for new valves of the same type. Such valves shall be marked with the stamp or sign of the inspection body and the name or sign of the enterprise and the date of refurbishment.

6.2.X.3 For inspection of valves the quality system has to comply with the requirements of 1.8.7.6 or 6.2.2.6.3. The enterprise carrying out the inspection has to verify that the inspected valve is of the same quality and safety standard as applicable for the new valves of the same type. Such valves shall be marked with the stamp or sign of the inspection body and the name or sign of the enterprise and the date of inspection.”

“6.2Y Requirements for enterprises fitting valves to cylinders

6.2.Y.1 Enterprises fitting valves to cylinders shall only fit valves that are fully complying with the provisions of 6.2.X.

6.2.Y.2 Such enterprises shall operate a documented quality system complying with the provisions of 6.2.2.5.3, approved and monitored by an Xa-inspection body according to 6.2.3.6.”

Reasoning: Currently there is a lack of clarity and responsibility within the provisions of RID/ADR as far as inspection and refurbishment of valves and the tasks and responsibilities of enterprises – other than the manufacturer – carrying out such work. The amendment addresses these issues and provides for provisions for inspection comparable to those for a periodic inspection and for refurbishment comparable to those for manufacture and assessment of conformity.

While requiring that inspection and refurbishment shall only be carried out either by the manufacturer of the valve or according to his advice by a qualified enterprise operating a documented quality system approved and monitored by a Type-A-body, the necessary requirements and responsibilities are laid down. For enterprises carrying out the inspection, the requirements for the quality system are appropriate to be applied as for an in-house-inspection service and for enterprises carrying out refurbishment as for a manufacturer.

F. Consequential transitional provisions:

“1.6.X Member States/Contracting Parties may not apply the provisions of 6.2.X and 6.2.Y until 31 December 2014.

1.6.Y Cylinder valves having been inspected or refurbished before 1 January 2013, or before 1 January 201 in case of application of 1.6.X, may continue to be used no later than the next periodic inspection or exceptional check of the cylinder.”

Reasoning: If adopted, the new provisions of 6.2.X and 6.2.Y will be applicable from 1 January 2013. While industry, inspection bodies and others will need to prepare and adopt the new quality assurance measures, a transitional period should be granted. It is deemed to be sufficient time for preparation, if a two year period is granted. For valves inspected or refurbished before the end of that period, continuous use should be permitted until the next periodic or exceptional check to avoid interim measures on valves circulating fitted to cylinders.
