



**Economic and Social
Council**

Distr.
GENERAL

ECE/TRANS/WP.15/AC.1/2009/22
11 June 2009

Original: ENGLISH

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

Bern, 8-11 September 2009 and
Geneva, 14-18 September 2009
Item 3 of the provisional agenda

REPORTS OF INFORMAL WORKING GROUPS

Report of the informal working group on the periodicity of testing of
refillable welded cylinders for Liquefied Petroleum Gases (LPG)

Submitted by the Government of Germany on behalf of the informal working group^{1,2}

Background

1. At the September 2007 session of the Joint Meeting, the Government of Germany submitted document ECE/TRANS/WP.15/AC.1/2007/59 highlighting problems concerning the application of the provisions of Chapter 4.1, packing instruction P 200, paragraph 10, letter v). As a follow-up to the discussions an informal intersessional working group was established to

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/2009/22.

investigate the problem and to elaborate a proposal for harmonisation of the provisions to extend the interval of the periodic inspection of refillable welded steel cylinders for LPG to 15 years.

Information

2. The informal working group met four times:
 - in Krefeld (Germany) from 09-10 January 2008;
 - in Muenster/Westphalia (Germany) from 11-12 June 2008;
 - in Brussels (Belgium) from 16-12 December 2008;
 - in Potsdam (Germany) from 9-10 March 2009.
3. Representatives of Belgium, France, Germany, Sweden, Switzerland and the United Kingdom and from the international non governmental organisations (European Liquefied Petroleum Gas Association (AEGPL), European Cylinder Makers Association (ECMA) and European Industrial Gases Association (EIGA) attended the meetings, although not all delegates could take part in all meetings of the group.
4. Progress reports were submitted to the Joint Meeting in:
 - March 2008 (informal document INF. 15 and ECE/TRANS/WP:15/AC.1/110, paras. 35 - 39);
 - September 2008 (ECE/TRANS/WP.15/AC.1/2008/13, informal document INF.8 and ECE/TRANS/WP.15/AC.1/112, paras. 38 – 40);
 - March 2009 (ECE/TRANS/WP.15/AC.1/2009/6, ECE/TRANS/WP.15/AC.1/114 (paras. 52 to 55) and informal document INF.33.

Method of Working

5. The informal working group started by evaluating, on the basis of available information from various countries and from international organisations, which countries currently make use of the clause in P 200 (10) v and which provisions they apply to grant a 15-year testing interval for refillable welded steel cylinders for LPG distribution within their home market.
6. It was found out that quite a number of countries make use of that clause, but every country has different provisions and systems in place – from almost no additional requirements compared to cylinders with a 10-year testing interval to some very sophisticated systems with quite extensive requirements including specific tests (e.g. burst tests on samples). It appeared that very few countries had completely refused to apply this clause (e.g. Sweden). For many countries no information could be gathered and it could not be evaluated whether there was no intention to use the clause or whether just nobody had applied for making use of it.
7. The common understanding of the informal working group about this wide spread approaches was that many open questions and issues had to be faced and discussed and that quite a few problems had to be solved before an harmonised solution could be found. Future

harmonised provisions could not be based on the extremes of “no additional requirement” or “the most detailed provisions”, but should be developed in a safe and practical interim way so that they may be applicable to all RID Member States/Contracting Parties of ADR and ADN and that application would no longer be limited to the countries having granted the 15-year testing interval as a specific national solution.

8. It was agreed that the solution should consist in provisions in three areas:

- design and construction of cylinders;
- filling centres and operations including QS systems and responsibilities;
- (re-)qualification and testing of cylinders at the 15 year interval.

9. For an harmonised solution, an harmonised technical basis had to be found. This was not easy because for many refillable welded steel cylinders used for LPG, the basic technical provisions were quite different as the requirements depended on the national technical codes accepted by the national competent authority and for numerous cylinders not even a type approval was granted. Although the situation improved in 1999 as RID/ADR started to require type approvals, the requirements could still be based on national technical codes as when EN 1442 was first referenced in RID/ADR, the application of the standard was one option, but not mandatory.

10. The informal working group reached agreement that cylinders manufactured since 2003 according to EN 13322-1 and cylinders manufactured in conformity with Directive 84/527/EEC could be considered of equivalent strength and safety to EN 1442.

11. To be sure that those cylinders are suitable and safe for a 15-year testing interval, the informal working group agreed to rely on EN 1442 as the basic standard and to consider EN 13322-1 and Directive 84/527/EEC as being equivalent standards of design and construction. Any cylinder conforming to RID/ADR and EN 1442/EN 13322-1/Directive 84/527/EEC should be considered to be designed to an acceptable safety level and should serve as the basic technical standard to grant a 15-year interval.

12. The informal working group considered this to be justified by the experience that various countries and AEGPL had collected for such cylinders under the non-harmonised national systems. If technical problems e.g. for burst strength with certain cylinders occurred, they were found to be related to cylinders from the pre 1997 area not designed and manufactured according to EN 1442/EN 13322-1/Directive 84/527/EEC. If such cylinders showed problems, these problems were not of technical nature related to design and manufacture, but they were due to non appropriate maintenance or use.

13. Nevertheless, cylinders not conforming to EN 1442, EN 13322-1 or Directive 84/527/EEC were not found completely unsuitable for a 15 year interval, as whether they could be deemed equivalent or not depended on the individual design and construction requirements applied. So it was agreed to base the technical requirements on RID/ADR in connection with EN 1442 or EN 13322-1 or Directive 84/527/EEC; such cylinders would be eligible for the future harmonised system. Any group of cylinders designed and manufactured according to a nationally accepted technical code, which could demonstrate to the competent authority/an inspection body of type A

according to 1.8.6 to be of equivalent technical safety, could be eligible, too. This approach would ensure an equivalent technical safety level for granting a 15 year interval in the harmonised system.

14. The informal working group was convinced that technical safety requirements addressing the cylinders only would not be sufficient and should be linked to requirements for owners and filling centres to guaranty high quality treatment, maintenance and use of the cylinders. Therefore the informal working group agreed to require filling centres to operate a documented quality system and owners to send their 15-year cylinders for filling only to known filling centres operating such a system. So the cylinders would be circling under controlled circumstances monitored by the owners and the filling centres documented and monitored to work in compliance with the regulations and standards under high quality process and safety standards.

15. To make this system work, a 15-year interval could only be granted to the owner of cylinders and not to the manufacturer. So the owner has to apply for a 15 year interval for his own cylinders and has to demonstrate for the first granting of a 15 year interval as well as for each re-qualification for a next 15-year interval compliance with the provisions of the new harmonised system.

16. To further reduce risk of potential internal corrosion of the cylinders, the informal working group agreed to require only high quality LPG with very low potential corrosion contaminates to be filled in the cylinders with a 15-year interval.

17. Requirements for the valves to be fitted to cylinders with a 15-year interval periodic inspection were subject to detailed discussions in the informal working group as well. Finally it was agreed that a difference should be made between automatically operating valves and manually operated valves. As experience showed that, after proper refurbishment or inspection according to EN 14912, manually operated valves could be considered suitable to be re-fitted after a periodic inspection, this was included if the refurbishment or inspection is carried out either by the manufacturer of the valve or according to his instructions by a specialised agency operating a documented quality system. Automatically operating valves should not be re-fitted after a periodic inspection and should be changed for a new one of the same type as specified in the type approval.

18. In the opinion of the informal working group, this combination of technical, organisational and quality requirements will lead to a sufficient safety level for the harmonised system to grant a 15-year testing interval for refillable welded steel cylinders for LPG applicable to all RID Member States/ Contracting Parties of ADR and could overcome the harmonisation deficit currently included in P 200 (10) v.

19. As the current application of P 200 (10) v in the countries using this clause and the requirements imposed proved to be very different, it soon became clear that a sufficiently long and generous transitional period may be needed to first establish the new system in the regulatory framework and then second for owners of cylinders to apply for a 15-year interval according to the harmonised system.

20. The transitional mechanism as developed is composed of two steps. During a four year period, it should be permitted to grant a 15-year interval for new cylinders on the basis of the former clause in P 200 (10) v for use in the national system as it currently exists. After that period, new manufactured cylinders for a 15-year testing interval should fully comply with the new harmonised provisions.
21. Cylinders manufactured before and having been granted a 15-year interval before on national level, should be permitted to continue to circulate in their respective national system as long as the national competent authority permits. However, owners may apply to grant a 15-year interval on the basis of the new harmonised provisions for transport and use throughout the RID/ADR area for their cylinders if they are complying with the harmonised provisions and if they either belong to one type according to a type approval or to a group of identical style cylinders for which the same version of RID/ADR and the nationally accepted technical code applied at the time of manufacture. This was agreed to permit a smooth transition for the high number of existing cylinders.
22. To differentiate cylinders with a 15-year interval according to the new harmonised provisions from those with a 15-year interval based on the existing national systems, the informal working group agreed to require a simple marking for the cylinders according to the new harmonised system. This would also clarify indirectly that any cylinder not having this marking would be deemed to be permitted for a 10-year interval only in all RID Member States/contracting parties of ADR except the country/countries having granted a 15-year interval for their respective territory only.
23. After a discussion on some options where to most appropriately place the provisions, the informal working group agreed not to change P 200 (10) v, but to add a new sub-paragraph with a reference to a new paragraph 12 in P 200 which should contain the new provisions. It was mentioned that this place for the provisions may be reconsidered if for further types of cylinders provisions for an extension of the testing interval for periodic inspections may be included at a later stage.
24. The proposal of the informal working group is included in annex I of this document. The Joint Meeting is invited to agree to the proposal to amend RID/ADR as from 1 January 2011.
25. During the discussions, several members of the Working Group highlighted that some of the requirements developed for the new harmonised system to grant a 15-year interval would be useful and reasonable to be applied to periodic inspections of cylinders and other pressure receptacles as well, regardless of the interval of their periodic inspection. The informal working group agreed to bring this to the attention of the Joint Meeting. These requirements are listed in annex II. The Joint Meeting is invited to decide on further action as appropriate.
26. The agreed minutes of the last meeting of the Working Group in Potsdam are reproduced in informal document INF.4 as for time reasons they could not be attached to informal document INF. 33 presented to the Joint Meeting in March 2009.

Annex I

Proposal to amend RID/ADR

1. In chapter 4.1.4.1 amend Packing Instruction P 200 paragraph 10 letter v to read (new text is underlined):

- “v. (1) The interval between inspections for steel cylinders - except refillable refillable welded steel cylinders for liquefied petrol gases (LPG) - may be extended to 15 years:
- (a) with the agreement of the competent authority (authorities) of the country (countries) where the periodic inspection and the carriage take place; and
 - (b) in accordance with the requirements of a technical code or a standard recognised by the competent authority.
- (2) For refillable welded steel cylinders for LPG the interval may be extended to 15 years, if the provisions of paragraph (12) of this packing instruction are applied.”

2. In chapter 4.1.4.1 insert in packing instruction P 200 a **new paragraph 12** to read:

“(12) Provisions to be applied for the extension of the interval between periodic inspections of refillable welded steel cylinders for LPG to 15 years.

1. General Provisions

- 1.1 An interval of 15 years for the periodic inspection of refillable welded steel cylinders for the transport of Liquefied Petroleum Gas (LPG) of UN 1011, UN 1075, UN 1965, UN 1969 or UN 1978 may be granted, if the provisions of this section are applied.
- 1.2 For the application of this section, the competent authority shall not delegate its tasks and duties to inspection bodies of type Xb (Xb bodies) or In-house inspection services (IS bodies).
- 1.3 The owner of the cylinders shall apply to the competent authority for granting the 15 year interval, and shall demonstrate that the requirements of number 2 to 4 are met.
- 1.4 The cylinders must have been manufactured in conformity with the provisions of RID/ADR/ADN in accordance with
 - EN 1442 since 1. January 1999; or

- in accordance with EN 13322-1 since 1. January 2003; or
- in conformity with directive 84/527/EEC as applicable.

Other Cylinders manufactured prior to the 1. January 2009 in conformity with RID/ADR in accordance with a technical code accepted by the national competent authority may be accepted for a 15 year interval, if they are of equivalent safety to the provisions of RID/ADR/ADN as applicable at the time of application.

- 1.5 The owner has to submit documentary evidence to the competent authority demonstrating that the cylinders comply with the provisions in 1.4. The competent authority shall verify that these conditions are met.
- 1.6 The competent authority shall check whether the provisions of number 2 and 3 are fulfilled and correctly applied. If all provisions are fulfilled, it shall authorise the 15-year interval for the cylinders. In this authorisation, the type of cylinder (as specified in the type approval) or a group of cylinders (see note) covered shall be clearly identified. The authorisation shall be delivered to the owner; the competent authority shall keep a copy. The owner shall keep the documents for as long as the cylinders are authorised for a 15 year interval.

Note: A group of cylinders is defined by the production dates of identical cylinders for a period, during which the applicable provisions of RID/ADR and of the technical code accepted by the competent authority have not changed in their technical content. Example: Cylinders of identical design and volume having been manufactured according to the provisions of RID/ADR as applicable between 1. January 1985 and 31. December 1988 in combination with technical code X accepted by the competent authority applicable for the same period, form one group in terms of the provisions of this section.

- 1.7 The competent authority shall monitor the owner of the cylinders for compliance with the provisions of RID/ADR/ADN and the authorisation given as appropriate, but at least every three years or when changes to the procedures are introduced.

2 Operational Provisions

- 2.1 Cylinders having been granted a 15 year interval for periodic inspection shall only be filled in filling centres applying a documented quality system to ensure that all the provisions of P 200 (7) and the requirements and responsibilities of EN 1439:2008 are fulfilled and correctly applied.
- 2.2 The competent authority shall verify that these requirements are fulfilled and check this as appropriate, but at least every three years or when changes to the procedures are introduced.
- 2.3 The owner has to provide documentary evidence to the competent authority that the filling centre complies with the provisions of 2.1.

- 2.4 If a filling centre is situated in a different contracting party/member state, the owner has to provide additional documentary evidence that the filling centre is monitored accordingly by the competent authority of that contracting party/member state.
- 2.5 To prevent internal corrosion, only LPG of high quality with very low potential contamination shall be filled into the cylinders. This is deemed to be fulfilled, if only LPG conforming to the corrosion contaminates level of EN 1440:2008, annex E.1, letter b, is filled in.

3 Provisions for qualification and periodic inspection

- 3.1 Cylinders of a type or group already in use, for which a 15 year interval has been granted and to which the 15 year interval shall be applied to, shall be subject to a periodic inspection according to 6.2.3.5.

Note: For definition of a group of cylinders, see Note to 1.6.

- 3.2 If a cylinder with a 15-year interval fails the hydraulic pressure test during a periodic inspection e.g. by bursting or leakage, the owner shall investigate and produce a report on the cause of the failure and if other cylinders (e.g. of the same type or group) are affected. In the latter case, he shall inform the competent authority. The Competent authority shall then decide on appropriate measures and inform the Competent Authorities of all other Member States/Contracting Parties accordingly.
- 3.3 If internal corrosion as defined in the standard applied (see 1.4) has been detected, the cylinder shall be withdrawn from use and shall not be granted any further period for filling and transport with LPG.
- 3.4 Cylinders having been granted a 15 year interval shall only be fitted with valves designed and manufactured for a minimum 15 year period of use according to EN 13152:2001 + A1:2003 or EN 13153:2001 + A1:2003. After a periodic inspection, a new valve shall be fitted to the cylinder, except that manually operated valves, which have been refurbished or inspected according to EN 14912:2005 may be re-fitted, if they are suitable for another 15 year period of use. Refurbishment or inspection shall only be carried out by the manufacturer of the valves or according to his technical instruction by an enterprise qualified for such work and operating under a documented quality system.

4. Marking

Cylinders having been granted a 15 year interval for periodic inspection, shall additionally be clearly visible and durable be marked with "P15Y". This marking shall be

removed if the cylinder is no longer authorised for a 15 year interval.” ((This marking shall not apply to cylinders being subject of the transitional provision in 1.6.X.))??

3. Add a **new transitional provision** to chapter 1.6 to read:

“1.6.X: The provisions of chapter 4.1 packing instruction P 200 (10) v of RID/ADR as applicable on 31. December 2010 may be applied by Member States/ Contracting Parties to cylinders manufactured until 31. December 2014.

With the agreement of the Competent Authority of the country (countries), where the periodic inspection and the carriage take place, all cylinders having been granted a 15 year interval for periodic inspection according to these provisions may continue to be transported, used and periodically inspected in that country (those countries) for 15 year intervals under the conditions as specified by the competent authority according to chapter 4.1, Packing Instruction P 200 (10) v as applicable on 31. December 2010.”

Annex IIList of provisions applicable for periodic inspection of pressure receptacles in general

During its work on harmonisation of provisions of packing instruction P 200 (10) v for the extension of the interval of periodic inspections of refillable welded steel cylinders for LPG, the informal working group found out that several provisions elaborated for application for a 15-year periodic inspection would be practical and suitable to increase quality of periodic inspection of pressure receptacles in general.

These findings are listed below. The Joint Meeting is invited to study the matter and to decide on appropriate further action.

If the outcome is to include such requirements for periodic inspection of pressure receptacles in general, the informal working group offers to prepare a proposal for amendment of RID/ADR. Such requirements could then be moved from P 200 for application to 15-year-cylinders only to section 4.1.6 for general application to pressure receptacles.

No.	Proposed requirement	Achievable result	Action required
1	Require filling centres to apply a documented quality system approved and monitored by the competent authority/a type a-body	Third party audited QS systems support correct application of provisions and quality of filling in qualified filling centres, hence promotes safety and comparability of work.	Working Group to develop proposal
2	Require owners/operators to submit their pressure receptacles only to filling centres working under an approved and monitored quality system	Owners/operators are responsible for compliance of their pressure receptacles for the whole period between periodic inspections. Part of this should be to send their pressure receptacles for re-filling only to filling centres, where they will be refilled by qualified personal. This supports quality of filling.	Working Group to develop proposal
3	Better differentiate Liquefied Petrol Gases (LPG) from gases for industrial use by inserting a definition in 1.2.1.	LPG is defined in several standards, but not always consistently. As the application of referenced standards now is mandatory in RID/ADR and as for LPG in RID/ADR (see 6.2.4 compared to 6.2.2) mostly other standards are referenced than for industrial gases, clear definitions would help clarifying which standard(s) to apply and avoid	1. Draft Proposal: Insert in 1.2.1: <i><u>“Liquefied Petroleum Gas (LPG) – a mixture of light hydrocarbons, gaseous under normal atmospheric conditions which can be liquefied by increased</u></i>

		<p>questions of overlapping application. Such a definition would also permit the tidying up of a number of clauses, notes and special provisions which could consistently be applied to LPG as defined.</p>	<p>pressure or decreased temperature. The main components are propane, propene, butane and butene isomers, assigned to UN 1011, UN 1075, UN 1965, UN 1969 or UN 1978. Flammable gases assigned to other UN numbers shall not be regarded as LPG.”</p> <p><i>Note: This combines the definition as discussed in CEN TC 286 with the assignment to UN numbers as agreed in Potsdam.</i></p> <p>2. Consequential amendments: Working Group to work out any consequential editorial amendment(s) in all relevant chapters, e.g. 4.1 to 4.3, 6.2 and 6.8</p>
4	Limit re-fitting of valves having been refurbished or inspected according to EN 14912:2005 to manually operated valves.	During the discussions of the Working Group it was agreed that manually operated valves (e.g. handrail-valves) having been refurbished or inspected according to that standard, had shown sufficient experience to be suitable to be re-fitted after a periodic inspection, but that similar experience has not been gained with automatically operating valves (e.g. self-closing valves).	Working Group to develop proposal
5	To limit risk of internal corrosion of cylinders for LPG to the minimum technically possible, only LPG of very high	Filling of LPG of high purity meeting the corrosion contaminates level of EN 1440:2008, annex E.1, letter b, will further reduce risk of internal corrosion of welded steel	Working Group to develop proposal

	<p>purity should be filled into cylinders.</p> <p><i>Note: This may not affect pressure receptacles in general, as LPG is filled into cylinders only.</i></p>	<p>cylinders.</p>	
6	<p>Obligation for owners to investigate the reason(s) for a severe technical failure (e.g. bursting at a pressure test) of pressure receptacles and report to the competent authority.</p> <p><i>Note: Such an obligation could also be considered for tanks; but this was not discussed by the Working Group.</i></p>	<p>Such investigation could show whether such a failure was a single case or could be considered to systematically affect other pressure receptacles of the same design and type.</p> <p>Reporting to the competent authority would then facilitate to take appropriate further corrective action towards affected pressure receptacles of all owners concerned.</p>	<p>Working Group to develop proposal</p>
