

Report of voting on ISO/DIS 15869-2

Compilation of comments

| | |
|-----------------|-------------------------------------|
| Date:2004-04-19 | ISO/TC 197 N 296 Annex B |
| | Reference document: ISO_DIS_15869-2 |

| 1 | 2 | (3) | 4 | 5 | (6) | (7) |
|-----------------|---|---|------------------------------|--|---|--|
| MB ¹ | Clause No./ Subclause No./ Annex (e.g. 3.1) | Paragraph/ Figure/ Table/ Note (e.g. Table 1) | Type of comment ² | Comment (justification for change) by the MB | Proposed change by the MB | Secretariat observations on each comment submitted |
| DE | | | ge | Germany agrees with this draft international standard. However, this standard requires for its application the existence of ISO 15869-1, to the draft thereof we object. Therefore it is recommended to consider forwarding of processing this draft only after amendment of ISO/DIS 15869-1. | | |
| US | Entire standard | | ge | This standard is invalid in it's present form. In this draft standard, there are numerous places where the manufacturer is permitted to determine manufacturing or inspection requirements. In most cases, no specific guidance or requirements are given to the manufacturer about how to establish these requirements. At present the standard is neither a "performance" standard or a "prescriptive" standard. | Remove all references to "shall be specified by the tank the manufacturer " and make specific requirements for these items. | |
| ** | General | | ed | As specific clauses of norm refs are cited in text, these are correctly given as dated refs in clause 2 but are not correctly cited as dated refs in text. See ISO/IEC Directives Part 2, 2001, 6.6.7.5.3. | Please use correct format for citing dated refs. in text. For this purpose, the year of publication of the various parts of ISO 15869 can be given as 2004. | |
| FR | General | | ge | We consider that this document shall cover not only tanks on vehicles but complete high pressure hydrogen system. With components as valves, pressure relief devices, connecting devices .. The EIHP document is considering that this way (here above) should be followed. | | |
| SE | General | | ge | The DIS varies from the harmonised technical requirements agreed at the joint GRPE/ISO meetings in 2002 & 2003 in a number of aspects and without discussion in the appropriate TC197 working group. A joint GRPE/ISO meeting to be held to discuss the variations. | | |
| SE | General | | te | At the joint GRPE/ISO meetings in 2002 & 2003 the term nominal working pressure was agreed as a more accurate description than working pressure together with representatives from SAE. The use of "nominal" was | Change "working pressure" to "nominal working pressure" | |

**Report of voting on ISO/DIS 15869-2
Compilation of comments**

Date: 2004-04-19
Reference document: ISO_DIS_15869-2

ISO/TC 197 N 296 Annex B

| 1 | 2 | (3) | 4 | 5 | (6) | (7) |
|-----------------|---|---|------------------------------|--|--|--|
| MB ¹ | Clause No./ Subclause No./ Annex (e.g. 3.1) | Paragraph/ Figure/ Table/ Note (e.g. Table 1) | Type of comment ² | Comment (justification for change) by the MB | Proposed change by the MB | Secretariat observations on each comment submitted |
| | | | | intended to clarify that it does not represent the maximum in service pressure experienced by a component and to avoid misinterpretation used in other key standards. Pressure definitions must be standardised and acceptable. | | |
| FR | Scope | | ge | We request, as agreed on EHP draft, that removable cylinder assembly should be also considered in the document. This approach is indeed innovating and interesting in captives fleet | Scope ...as fuel for land vehicle with fixed or removable tanks. | |
| UK | Table A | | TE | There is a need to remove any ambiguity with what constitutes a minor change and the affect of changing two parameters e.g. length and diameter. | Add further clarification | |
| UK | Title | | ED | Spelling mistake | Change "vehicule" to "vehicle" | |
| UK | Title | | ED | Spelling mistake | Change "vehicule" to "vehicle" | |
| UK | Title | | ED | "Particular Requirements" is not specific | Change to "Design and Manufacture" | |
| SE | Cover page & heading on Page 1 | Main heading | ed | Vehicle spelt incorrectly | Change "vehicule" to "vehicle" | |
| ** | 2 | | ed | Pls use correct fixed introductory text to norm refs. See Directives Part 2, 6.2.2. | | |
| US | 4 | 2 nd paragraph | te | Leakage can occur due to any type of crack not just a fatigue crack | Remove the word "fatigue" and rephrase as "... only by the growth of a crack." | |
| UK | 4. 2 nd para. | | TE | The term "feasible" should be quantified. The second sentence is irrelevant. | Clarify Delete | |
| IT | 5. Design options | | te | There have been several discussions about the design requirements and criteria for type 1 cylinders, mainly to obtain a ISO standard not in conflict with the similar standard now at GRPE - WP29 (Draft ECE rev.12B). Safety factors related to option 1 (type 1 cylinders) are much higher than safety factors required by the standard for the other types of cylinders (type 2, 3, 4). | | |

| | | | |
|--|--|-------------------------------------|---------------------------------|
| Report of voting on ISO/DIS 15869-2 | | Date:2004-04-19 | ISO/TC 197 N 296 Annex B |
| Compilation of comments | | Reference document: ISO_DIS_15869-2 | |

| 1 | 2 | (3) | 4 | 5 | (6) | (7) |
|-----------------|---|---|------------------------------|--|---------------------------|--|
| MB ¹ | Clause No./ Subclause No./ Annex (e.g. 3.1) | Paragraph/ Figure/ Table/ Note (e.g. Table 1) | Type of comment ² | Comment (justification for change) by the MB | Proposed change by the MB | Secretariat observations on each comment submitted |

| | | | | | | |
|----|------------------------------------|--|----|---|--|--|
| US | 6.2.1 | | te | It is stated that the manufacturer may specify the pressure relief device and insulation system to be used on the tank. No specific guidance is given to do this/ | Specify the acceptable type of fire protection system to be used. | |
| US | 6.2.2 | | te | It is stated that the surface finish must give "adequate" protection and the manufacturer should provide guidance on coating treatment during inspection.. How is this defined? | Define what tests are required to determine that the surface finish is adequate. Define what guidance the manufacturer must specify during inspection. | |
| UK | 6.2.2 2 nd Sentence | | TE | This is applicable to a periodic inspection and retest standard, not a manufacturing standard. The obligation has to be with the retester to find this information, not on the manufacturer. | Delete | |
| US | 6.3.1 | | te | It is stated that the manufacturer may specify the fire protection system to be used on the tank. No specific guidance is given to do this/ | Specify the acceptable type of fire protection system to be used. | |
| US | 6.3.2 | | Te | ISO 11114-4 is referenced for hydrogen compatibility. ISO 11114-4 only applies to steels. Reference to ISO 15869-1 C.22 is technically correct only if the proposed changes to C.22 are accepted. | See US proposed change to ISO 15869-1 C.22. | |
| UK | 7.2.1 2 nd Sentence | | TE | Superfluous if first sentence is accurate. | Delete | |
| UK | 7.2.3 2 nd Sentence. | | TE | It is widely acknowledged that aluminium alloys are compatible with Hydrogen | Delete | |
| UK | 7.3.1 | | TE | The term "feasible" should be quantified. The second sentence is irrelevant. | Quantify. Delete. | |
| US | 7.3.1 | | te | Leakage can occur due to any type of crack not just a fatigue crack | Remove the word "fatigue" and rephrase as "... only by the growth of a crack." | |
| FR | 7.3.3 | | te | We do recommend that the value of burst pressure to working pressure made on type agreement should be confirmed by test made on batch test. | The metal tank shall have a minimum actual burst pressure of 2.25 time working pressure, at time of type approval. | |

Report of voting on ISO/DIS 15869-2
Compilation of comments

Date: 2004-04-19
 Reference document: ISO_DIS_15869-2

ISO/TC 197 N 296 Annex B

| 1 | 2 | (3) | 4 | 5 | (6) | (7) |
|-----------------|---|---|------------------------------|---|--|--|
| MB ¹ | Clause No./ Subclause No./ Annex (e.g. 3.1) | Paragraph/ Figure/ Table/ Note (e.g. Table 1) | Type of comment ² | Comment (justification for change) by the MB | Proposed change by the MB | Secretariat observations on each comment submitted |
| | | | | This should be done to keep an homogeneity of performance. | | |
| UK | 7.3.4 | | TE | there is no definition of what "stress analysis" means or how it is carried out. | Clarify | |
| US | 7.3.4 | | te | It is stated that a stress analysis must be carried out but does not specify what stresses are to be calculated. | Specify all of the stresses that must be calculated to satisfy the stress analysis requirements. | |
| UK | 7.3.5 | | TE | Annex B is informative and therefore it is not correct to require it to be done as a "shall" here. More information is required on this concept. | Remove | |
| US | 7.3.5 | | te | It is stated that "the tank manufacturer shall specify the maximum defect size at any location in the tank." It is not specified how this is to be determined. | The specific requirements for the maximum defect size must be specified in the standard or a method must be specified to determine the defect size. | |
| US | 7.3.6 | | te | It is stated that the manufacturer may specify the pressure relief device and insulation system to be used on the tank. No specific guidance is given to do this/ | Specify the acceptable type of fire protection system to be used. | |
| UK | 7.3.7 Last sentence | | TE | Should not refer to providing guidance to retesters as they are unable to comply with this obligation. The requirements should be placed in the appropriate periodic inspection standard and it should be placed upon the retester to obtain the information from the manufacturer. | Delete | |
| US | 7.3.7 | | te | It is stated that the surface finish must give "adequate" protection and the manufacturer should provide guidance on coating treatment during inspection.. How is this defined? | Define what tests are required to determine that the surface finish is adequate. Define what guidance the manufacturer must specify during inspection. | |
| UK | 7.4.1 | | ED | Replace "straight" with "parallel" | Revise | |
| UK | 7.4.2 | | TE | Clarification is required. If an aluminium cylinder is not closed by forming, then how is it closed? Should it say "aluminium cylinders shall not be formed from tube?" "equivalent techniques" is too vague. It is recommended | Revise | |

Report of voting on ISO/DIS 15869-2
Compilation of comments

| | |
|-----------------|-------------------------------------|
| Date:2004-04-19 | ISO/TC 197 N 296 Annex B |
| | Reference document: ISO_DIS_15869-2 |

| 1 | 2 | (3) | 4 | 5 | (6) | (7) |
|-----------------|---|---|------------------------------|--|---|--|
| MB ¹ | Clause No./ Subclause No./ Annex (e.g. 3.1) | Paragraph/ Figure/ Table/ Note (e.g. Table 1) | Type of comment ² | Comment (justification for change) by the MB | Proposed change by the MB | Secretariat observations on each comment submitted |
| | | | | that the requirements of clause 9.2.4 in ISO 9809-1 are inserted. | | |
| SE | 7.5.1 | | te | The DIS varies from the harmonised technical requirements agreed at the joint GRPE/ISO meetings in 2002 & 2003 by not including prototype tests for coatings. | Add new section: Coatings: Where exterior environmental protective coating is used, e.g. organic coating/paint, samples shall be tested as specified in ISO 15869-1, clause C.7 and shall meet the requirements therein. | |
| US | 7.5.1.1 | | te | The tensile strength of the material must be defined in the standard not by the manufacturer | Specify the required tensile strength for the materials to be used. | |
| US | 7.5.1.3 | | Te | ISO 1114-4 is referenced for hydrogen compatibility. ISO 1114-4 only applies to steels. Reference to ISO 15869-1 C.22 is technically correct only if the proposed changes to C.22 are accepted. | See US proposed change to ISO 15869-1 C.22. | |
| UK | 7.5.2 | | TE | "may be" is too vague. Recommend this is changed to "shall be" since annex A is normative. | Revise | |
| UK | 7.6.2 | | TE | "heat treated witness sample" needs to be defined | Update | |
| UK | 7.6.3 | | TE | The logic behind a) b) c) and d) is not understood. The need to have higher requirements for improved consistency is not understood. For large scale production, Statistical Process Control (SPC) methods should be used for process control not this method of increasing performance requirements. | Revisit. | |
| SE | 7.7 | b) | te | The DIS varies from the harmonised technical requirements agreed at the joint GRPE/ISO meetings in 2002 & 2003. Add thread details. | Change to "to verify the critical dimensions, thread details and mass....." | |
| UK | 7.7 | | GE | The use of the word "verify" in this clause is incompatible with the title. Either delete the word "verify" or restructure the clause. | Revisit. | |
| UK | 7.7 a) | | TE | Amend wording. | Change to "...of steel liners in accordance with ..." | |

Report of voting on ISO/DIS 15869-2
Compilation of comments

| | |
|------------------|-------------------------------------|
| Date: 2004-04-19 | ISO/TC 197 N 296 Annex B |
| | Reference document: ISO_DIS_15869-2 |

| 1 | 2 | (3) | 4 | 5 | (6) | (7) |
|-----------------|---|---|------------------------------|---|---|--|
| MB ¹ | Clause No./ Subclause No./ Annex (e.g. 3.1) | Paragraph/ Figure/ Table/ Note (e.g. Table 1) | Type of comment ² | Comment (justification for change) by the MB | Proposed change by the MB | Secretariat observations on each comment submitted |
| | | | | | | |
| UK | 7.7 c) | | TE | No requirements are specified for surface finish. | Clarify | |
| UK | 7.7 e) | | TE | Other methods to ensure homogeneity of the batch are available and should be allowed. | Change to "by hardness tests, or equivalent," | |
| UK | 7.7 2 nd para. | | TE | Why is it necessary to carry out these test both during manufacture and after completion? It is unnecessary to duplicate these tests. | Change to "Each tank shall be examined after heat treatment as follows." | |
| UK | Table A.1 | | GE | The clarity table should be improved. See table in ISO 11119 | Revise | |
| SE | Annex A | A.1 | ed | | Add a column dividing line between columns A & B | |
| SE | Annex A | A.1 | te | A change of metallic material is permitted but appears not to require any material tests on the new material. | Add a new column "G" with an "x" in the row for metallic material. Add a new note "G is the material tests described in 7.5.1.1 or 7.5.1.2 as appropriate." | |
| SE | Annex A | A.1 | te | Changes in other factors than the type of pressure relief device may affect performance in the bonfire test. | Change final row "Pressure relief device" to "Fire protection system or pressure relief device or pressure relief device location" | |
| US | Annex A | Table A.1 | Ed | Clarify note "a". | a) Only when thickness changes proportional to diameter and/or pressure change, <u>otherwise, qualify as a new design.</u> | |