



ISO/TC 197
Hydrogen technologies

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Secretariat: SCC (Canada)

Updated Collated Comments for ISO ISO 22734

Replaces: N 1091

Document type: Public document

Date of document: 2019-10-16

Expected action: INFO

Background: Please find attached an UPDATED collated comments file related to ISO 22734, taking into account an unfortunate ANSI file mix-up.

Committee URL: <https://isotc.iso.org/livelink/livelink/open/tc197>

Template for comments and secretariat observations

Date:2019-09-06

Document: ISO 22734

Project:

MB/ NC ¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Observations of the secretariat
AR-004			Bibliography	Ed	In the final version of the normative document, all bibliographic references must be ordered numerically and alphabetically and in this case they are not. Therefore it is suggested to perform such an order	Order numerically all the references	Accepted and done – the bibliographical entries have been reordered so that ISO and/or IEC documents are listed before other standards or sources in numerical order. (ISO/CS editor)
AU-007		2		ge	There is a large number of normative references. Is it reasonable to expect a user of ISO 22734 to familiarise themselves with all these other documents?	Consider reducing the number of normative references.	Not accepted – technical changes are not allowed at the publication stage. Please reserve this comment for discussion in the next revision. (ISO/CS editor)
AU-008		3.4		ed	The term “laymen” seems redundant, and could be considered condescending. According to the rest of the definition, a “non-layman” could use a hydrogen generator for a commercial purposes.	Delete “by laymen” from definition.	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
CA-009		3.24		te	The definition “...part subject to positive internal pressure of 100 kPa or greater.” is not totally clear that this is with respect to atmosphere	Suggest revision: “...part subject to positive internal pressure (i.e. gauge pressure) of 100 kPa or greater.”	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
AU-010		3.24		te	For clarity, it would be worth stating whether 100 kPa is absolute, gauge or differential.	Clarify the type of pressure that should be measured.	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
AU-011		3.26		ge	It is foreseeable to have a “portable” hydrogen generator attached to something with wheels. In this case, it would still be portable but not meet the requirement of being easily carried by a person.	Clarify if “portable” implies “carried by a person”, or “not intended to be used only in one location”.	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
JP1-012		3.26		ed	Use the defined term of hydrogen generator instead of generator to define the portable hydrogen generator.	Insert “hydrogen before generator” in line 1 of the definition	Accepted and done. (ISO/CS editor)

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CA- 013		3.32		te	In the definitions section (3.32) Standard Conditions are noted as 273,15 K (0 °C) and 100 kPa absolute. The accuracy of these two numbers is inconsistent, since temperature is given to five significant digits and pressure to three; and the pressure is not a standard atmosphere (101,325 kPa). It should be noted that IUPAC uses 100 kPa as standard pressure (for thermodynamic properties), but NIST, ISO/TR 15916 and most industries use standard atmosphere 101,325 kPa.	suggest using 273,15 K (0 °C) and 101,325 kPa	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
AU- 014		3.33		ge	It is not explicit that this definition refers to an <i>electrical</i> supply cord.	Replace “flexible cord, for supply purposes” with “flexible electrical cable, for supply of electricity”.	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
JP2- 015		4.1.5.3	Last paragraph	ed	Use the term “pressure relief device“ defined under 3.23 instead of “pressure-relief device”.	Replace a hyphen between “pressure” and “relief” at the beginning of line 1 with a space.	Accepted and done – removed hyphens in “pressure-relief device” throughout the document to be consistent with 3.23. (ISO/CS editor)
JP3- 016		4.1.6.2	Note	ed	A reference to EIGA Doc 211/17 made at the end of Note may be a reference to Doc EIGA-IGC, 211/17, the document listed under [23] of the Bibliography.	Rearrange the reference using the correct name to the referenced document.	Accepted in principle – changed the reference in the bibliography to “EIGA Doc 211/17”. (ISO/CS editor)
JP4- 017		4.1.6.3	2nd paragraph	ed	“1%” in line 2 is not a correct expression under the Directives 2.	Insert a space between “1” and “%”.as is correctly expressed in the 1st paragraph.	Accepted and done. (ISO/CS editor)
JP5- 018		4.1.8		ed	“Equipment” after commercial in line 1 shall be “hydrogen generator”.	Replace “equipment” in line 1 with “hydrogen generator”.	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
JP11 -019		4.1.8	1st para	Ed	“hydrogen temperature range” in line 2 shall be “oxygen temperature range”.	Change “hydrogen temperature range” into “oxygen temperature range”.	Not accepted – this comment is subject to technical discussions.

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							Please reserve it for the next revision. (ISO/CS editor)
es-020	2	4.1.8	Paragraph 1	Ed, te		"oxygen" instead "hydrogen"	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
JP6-021		4.3.1	3rd paragraph on page 10	ed	"or" after "Portable equipment" in line 1 shall be "and". Otherwise the requirement under this paragraph is not applicable to both the portable equipment and the equipment not installed by the manufacturer.	Replace "or" after "Portable equipment" in line 1 with "and".	Not accepted – the requirement applies to both depending on which equipment is used. (ISO/CS editor)
JP9-022		4.3.11	1st paragraph	ed	A term such as "having" appears to be missing between "or" and "a failed liquid line" at the end of line 1.	Insert "having" before "a failed liquid line" or otherwise make the sentence in a proper form.	Not accepted – "subject to a failed liquid drain line" is correct. (ISO/CS editor)
JP7-023		4.3.3.3	2nd paragraph	ed	The reference to 6.1.8 made in line 2 is not correct. Clause 6.1.8 does not exist in this document.	Make the reference to a proper clause or delete the phrase containing 6.1.8 between commas.	Accepted – changed the reference to 4.4.1.8. If this is not the proper subclause to be referenced, please return a comment and provide the correct reference to the added during the Final review. (ISO/CS editor)
AU-024		4.3.3.8		ge	It is not explicit that the terminal refers to an <i>electrical</i> connection.	Replace " A terminal connected" with "A terminal that is electrically connected".	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
AU-025		4.3.4.1		ed	The last line of the first paragraph of 4.3.4.1 contains an extraneous symbol after MAWP.	Delete extraneous symbol after MAWP.	Accepted and done. (ISO/CS editor)
CA-026		4.3.4.2		te	In line with the comment on 3.24, it is not clear that the phrase "...vessels for fluids that may exceed 100 kPa in normal operation..." is inferring gauge	Suggest revision: "...vessels for fluids that may exceed a pressure with respect to atmosphere (i.e. gauge pressure) of 100 kPa in normal operation..."	Not accepted – this comment is subject to technical discussions. Please reserve it for the next

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					pressure.		revision. (ISO/CS editor)
AU- 027		4.3.4.5		ge	Removal of 10 micron particles: how is this requirement determined?	Consider changing the requirement to a recommendation.	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
JP8- 028		4.3.4.6	Note	ed	Use “fuelling” instead of “fueling” to be consistent with the Directives Part 1.	Replace “fueling” with “fuelling”.	Accepted and done. (ISO/CS editor)
AU- 029		4.4.1.4		te	It is unclear whether the 1% volume fraction of hydrogen is the average throughout the enclosure, or at any point within the enclosure.	Clarify whether all locations within the enclosure need to be below 1% hydrogen, or whether it is an averaged value.	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
AU- 030		4.4.1.9		te	It is stated that detector(s) shall be installed in “optimum” location(s). However, what is technically the “optimal” location may not be possible or feasible. Removing “optimum” will not change the intended meaning of the statement.	Delete “optimum”.	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
AU- 031		4.4.1.9		ge	It is stated that the manufacturer needs to ensure that the “use and maintenance” of gas detectors are in accordance with IEC 60079-29-2. How can the manufacturer ensure this? Once installed, the manufacturer has no control over “use and maintenance”.	Either remove the requirements relating to “use and maintenance”, or change this requirement to a recommendation.	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
AU- 032		4.4.2.4		ge	The “applicable” parts of IEC 60335 are normative: but it is open to interpretation what parts are “applicable”. It is plausible for the user of ISO 22734 to deem critical parts of IEC 60335 to not be applicable.	Either need to be specific about what parts of IEC 60335 are applicable, or change from a requirement to a recommendation.	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
AU- 033		4.7		ge	There is no mention of interlocks: is this clause deliberately only passive control methods?	Consider including the potential for active safety control measures.	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)

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JP 10- 034		5.2.6.3.1	2nd paragraph	ed	The use of the term “test fluid” in line 1 and line 3 is confusing as the same term is used in 5.2.6.2 and 5.2.6.3.	Replace “test fluid” in line 1 and line 3 with “leak detection liquid”, which is used in 1st paragraph of 5.2.6.3.1, for clarity.	Accepted and done. (ISO/CS editor)
AU- 035		6		ge	It is not stated what language should be used for the marking and labelling.	Consider adding a statement that the labels should be in the language of the targeted end-user(s).	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
AU- 036		6.2 (i)		ed	Dot point (i): There is an extraneous symbol between “maximum” and “hydrogen”. Also note that the comma preceding “per unit of time” is underlined.	Delete extraneous symbol.	Accepted and done. (ISO/CS editor)
AU- 037		6.2 (p)		ge	Presumably, the label should only reference ISO 22734 if the hydrogen generator is compliant to ISO 22734.	Add “If compliant”.	Not accepted – it is understood that users who choose to use this document will comply with the provisions specified. (ISO/CS editor)
AR- 039		7.3.1	b)	Te	In clause 7.3.1 The term earthing is generally referred to a mortal inhabitant of the Earth not to the protective action in electrical systems. Originally the standard ISO 22734 included a reference to the standard IEC 60364-5-54, Electrical installations of buildings — Part 5-54: Selection and protection of electrical equipment - Earthing arrangements, protective conductors and protective bonding conductors. According to definitions from IEC, “earthing arrangement” refers to all the electric connections and devices involved in the earthing of a system, an installation and equipment. Therefore the term “earthing” in this subclause should be replaced by the proper “earthing” in the instruction for installation to be read as follows: b) instructions for protective earthing;	Replace the term “earthing” by “earthing” in the installation instruction to be read as follows: b) instructions for protective earthing;	Accepted and done – Changed to “earthing” to be consistent with the term “protective earthing” used in 6.3. (ISO/CS editor)

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AU-049		B.1		te	It is not the vapour concentration that will cause the mixture to ignite.	Replace “flammable mixture that will ignite” with “flammable mixture that could be ignited”.	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)
US		5.2.10.2		te	<p>There appears to be a conflicting requirement for the water test as applied to outdoor installed hydrogen generators because of the grammatical structure of clause 5.2.10.2. Does the outdoor hydrogen generator get subjected to a water jet test or an oscillating tube/spray nozzle water test?</p> <p>According to ISO 22734, clause 4.3.9, an outdoor installed hydrogen generator shall comply with an IP X4 rating, which is either an oscillating tube water test or a spray nozzle water test. But in clause 5.2.10.2, it says that an hydrogen generator intended for outdoor use or water hose wash shall be tested by the methods of IEC 60069-2-18:2017, clause 6.3 (a water jet test) or by the methods of IEC 60529 to the IP rating as defined in according to clause 4.3.9 and 4.3.3.2.</p>	<p><i>Revise first paragraph and insert new second paragraph as follows:</i></p> <p>5.2.10.2 Water test</p> <p>The components, electrical enclosures, and process enclosures of hydrogen generators intended for outdoor use or water hose wash <u>exposed to water ingress</u> shall be tested by the methods of IEC 60529 to the IP rating as defined according to 4.3.9 and 4.3.3.2.</p> <p><u>For hydrogen generators exposed to water hose wash down, an alternate water hose washdown ingress protection test may be conducted in accordance with IEC 60068-2-18:2017, clause 6.3.</u></p> <p>Where a hazard from ventilation opening water ingress exists, the hydrogen generator ventilation openings provided or specified by the manufacturer shall be tested.</p>	Not accepted – this comment is subject to technical discussions. Please reserve it for the next revision. (ISO/CS editor)

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						<p>Hydrogen and oxygen vent terminals provided or specified by the manufacturer shall meet the requirements of 4.3.9.</p> <p>Enclosures not intended to provide water ingress protection are not required to be tested.</p>	

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ISO_FDIS 22734_ANSI.doc: Collation successful

ISO_FDIS 22734_IRAM.doc: Collation successful

ISO_FDIS 22734_JISC.doc: Collation successful

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ISO_FDIS 22734_UNE.doc: Collation successful

Collation of files was successful. Number of collated files: 6

SELECTED (number of files): 6

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