

Template for comments and secretariat observations

Date:2020-06-22	Document: TC17_SC3_P1_N008	Project: TC17/SC3/p1
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MB/ NC ¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Observations of the secretariat
CU 001					We have no additional comments. Consider the comments of German colleagues		Thanks
IR16 002				ge	Replace APPENDIX A with Annex A and followed by “(Mandatory)” or “(Informative)” as appropriate.		Agreed. We added “Informative”
JP 003				Ge	We have no comments to 1CD of R 54.	None	Thanks
US 004				Ed	Section title: “Instrumental (conventional) definition of pH”	Use “operational” instead of “conventional”.	Agreed.
IR20 005			All Tabela	ge	The unit should be mentioned in bellow of quantities in table Molality mol/kg Temperature K	Molality Temperature mol/kg K	Agreed.
IR21 006			Table 1 Note 1	ed	Improve the wording 0.003 ÷ 0.004	0.003 - 0.004	Agreed
IR19 007			Table 3	ed	Improve the wording .02	0.02	Agreed
IR22 008			Table B3 end row	ed	Improve the wording Potassium dihydrogen phosphate	Potassium dihydrogen phosphate	Agreed
US 009		00		Ge/Ed	Sections of text are directly taken from the IUPAC 2002 document. What are the rules for attribution? If text is identical, should this not be directly cited?	Rewrite with original text or cite IUPAC 2002 document directly in cases where text is identical.	The text of Introduction we wrote by ourselves. The basic parts of the Project we picked from the IUPAC Recommendation. It is naturally, because we prepared the Project harmonized with the IUPAC 2002 and pointed about that in the Introduction and there are the links to it in some places of the text. The legal area no needs full text of the IUPAC 2002. So that, it is necessary to develop the OIML Recommendation which will be easy to use on various metrological level.
US 010		00 Introduction		Ed	"Determination of hydrogen pH is the most common method for controlling the composition of liquid	Change “liquid” to “aqueous”. "Determination of pH is the most common method for	Agreed

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					media, since the activity of hydrogen ions, pH, is one of the most important physicochemical (acid-base characteristics) properties of aqueous solutions." The term "hydrogen pH" is unusual. Use "pH" instead. Also is the use of "liquid media" correct, or should this be "aqueous"?	controlling the composition of aqueous media, since the activity of hydrogen ions, pH, is one of the most important physicochemical (acid-base characteristics) properties of aqueous solutions."	
US 011		00 Introduction		Ed	Suggest rephrasing this sentence: "This fact necessitates reliable measuring instruments that are traceable to the National primary standard of pH. And, the National primary standard of pH need to has the highest measurement accuracy for pH in the country and providing maintenance and reproducing of the pH scale."	"This fact necessitates reliable measuring instruments that are traceable to the international system of units (SI) through national primary pH standards. The national primary pH standards need to have high metrological quality with low measurement uncertainty to ensure reproducible pH measurements."	Agreed
US 012		00 Introduction		Ed	"Over the years, the pH scale has been repeatedly verified and defined more precisely..." It could be said that it is not the definition that has become more precise, but the attributions to uncertainty and error.	"Over the years, the pH scale has been studied in a way to assess more accurately sources of uncertainty to primary pH measurements. This has been done through key comparisons within the framework of ..."	Agreed
US 013		00 Introduction		Ed	"carried out with constantly monitoring pH"	Change to, "carried out by constantly monitoring pH" or "carried out with constant monitoring of pH".	Agreed
US 014		00 Introduction		Ed	"require increasing the accuracy of determining pH values"	Change to, "require increasingly accurate pH measurement".	Agreed
US 015		00 Introduction		Ed	"the national primary standard need to has the highest."	Change "has" to "have".	Agreed
US 016		00 Introduction		Ed	"and providing maintenance"	Change to, "and provide maintenance and reproducibility of the pH scale."	We deleted it (see the row US011)
US 017		00 Introduction		Ed	"...n the pH range 3.5 – 10.3 in the temperature range 273.15 – 323.15 K." The unit 'K' should follow each instance.	"273.15 K – 323.15 K"	Agreed
US 018		00 Table of		Ed	Empty bracket after section title "Instrumental	Correct or remove.	Agreed (see the row US004)

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		Contents			definition of pH."		
PL 019		Contents		ed	3. (...) []	3. (...) [1]	Agreed
DE 020		Introduction	1	ge	Term "hydrogen pH" does not exist	Please change to "pH"	Agreed
DE 021		Introduction	3	ed	Spelling mistake "define"	Please change to "defined"	Agreed. We changed it (see the row US012)
IR2 022		Whole the text		ge	Delete dote after each clause and subclause in whole the text	For example it is recommended to replace "1. Scope" with "1 Scope"	Agreed
IR12 023		Whole the text		ge	Improve the wording Both mol·kg ⁻¹ and mol/kg are used in the text. Use mol/kg in the text		Agreed
IR3 024		Whole the text (for example 1.1 , 1.2, 1.3, ...)		ge	Improve the wording "Scale"	For example in subclauses 1.1, 1.2, 1.3, it is recommended to use lower case letter "scale"	Agreed
IR10 025		Whole the text (for example 1.1, 2.3, ...)		ed	In order to avoid misunderstanding, tolerances should be expressed in a mathematically correct form in whole the text	use from or between 278.15 K to 323.15 K" to express a range	Agreed. We changed it as it has presented in VIM – in the temperature interval of 278.15 K to 323.15 K
IR4 026		Whole the text (for example 1.1, 2.3,)		ge	units shall be indicated for both digit in the whole document "This scale in the temperature interval between 278.15 – 323.15 K".	For example in subclauses 1.1 it is recommended to modify the wordings to "This scale in the temperature interval between 278.15 K – 323.15 K."	Agreed
PL 027		whole document		ed	improper math notation (SI unit rules and style conventions) e.g. 278.15 – 323.15 K	(278.15 to 323.15) K or 278.15 K to 323.15 K	Agreed
PL 028		whole document		ed	typefaces for symbols and superscripts and subscripts (italic type / roman type)	correct where needed (e.g. p. 5, 7)	Agreed

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IR15 029		Whole the text and tables	table	ge	Each group of three digits to the left or right of a decimal sign shall be separated by a space from the preceding		Agreed
US 030		1.1		ed	Same as above for temperature range	"273.15 K – 323.15 K"	Agreed
IR5 031		1.3 and 1.4		ed	Improve the wording 1.3 The Scale is used for the calibration and verification of pH measuring equipment. 1.4 The Scale are appropriate for aqueous and dilute ionic strength ($\leq 0.1 \text{ mol}\cdot\text{kg}^{-1}$) solutions.	1.3 The Scale is used for the calibration and verification of pH measuring equipment and appropriate for aqueous and dilute ionic strength ($\leq 0.1 \text{ mol}\cdot\text{kg}^{-1}$) solutions.	Don't agree. 1.3 is about the equipment and 1.4 is about the solutions. Moreover, giving at the different points will be more clearly for users and will accent their attention to each position.
DE 032		1.4		ed	"The scale are"	Change to "the scale is"	Agreed
US 033		1.4		Ed	"The sale are appropriate..."	Change to, "The scale is appropriate..."	Agreed
IR7 034		2.1		ge	symbols used in formulae and text shall be presented in a same letter and font		Agreed
US 035		2.1	Note	Ed	"However, since it is defined in terms of a quantity that cannot be measured by a thermodynamically valid method, the equation can be only a <u>notional</u> definition of pH [1]." Is this the correct intent, or is it meant to be "notational"?	Either use "operational" or "conventional". Alternatively, the entire note may be removed, since the definition is sufficient.	"a <u>notional</u> " is rite. This "Note" was given from IUPAC 2002. As it is not important in legal metrology area we decided to removed it.
IR8 036		2.1 and appendix B 2,3,4		ge	The meanings of symbols shall be explained below the formula in separate row and unit should be mentioned (Refer OIML B 6-2:2019, 6.5)		Agreed
IR9 037		2.3		ed	Improve the wording "temperature range 278,15–323,15 K from measurements on cells without transference"	temperature range 278.15 K–323.15 K from measurements on cells without transference	Agreed

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US 038		2.3		Ed	"278,15 – 323,15 K"	Use rather: "273.15 K – 323.15 K"	Agreed
US 039		2.3		Ed	"These primary standards have good reproducibility and low uncertainty." It is not correct to say that the standards "have" good reproducibility.	Perhaps use expression, "These primary standards are capable of establishing good reproducibility and low uncertainty."	Agreed
US 040		3	Table 1	Ed	Include unit for temperature in title	278.15 K – 323.15 K	Agreed
US 041		3	Table 1	Ed	Follow convention suggested above for solution description so that concentration precedes buffer and that units are shown for both solution strengths in binary solutions	For example: Potassium dihydrogen phosphate and sodium hydrogen phosphate: 0.025 mol·kg ⁻¹ KH ₂ PO ₄ + 0.025 mol·kg ⁻¹ Na ₂ HPO ₄	Agreed
US 042		3	Table 1, Note 1	Ed	Symbol used for 0.003 – 0.004 is ÷.	Use – instead of ÷.	Agreed
US 043		3	Table 1, Note 3	Ed	The term U (expanded uncertainty) is only introduced in this note.	It may be worthwhile to include a description of U in the Terms and Definitions (Section 2).	Agreed. If we describe "expanded uncertainty" we should describe the all other terms what will be in the description of the them. So, we decided to give links to VIM and GUM
US 044		3	Table 1, Note 3	Ed	Clarify units of pH at the end of the second sentence.	"... pH measurement is 0.005 in pH"	Agreed, we clarify units.
US 045		3.1		Ed	Us the comma that follows "buffer" and precedes "Cl ⁻ " necessary in the schematic of the Harned cell?		Agreed, we added symbol "S"
IR13 046		3.2		te	To avoid confusion and refer to in the text use sub clause instead of bullet and refer them in table 1		Agreed.
US 047		3.2		Ed	Alternate wording suggested for, "These following six buffer solutions are recommended as references:"	Suggest: "These following six buffer solutions are recommended as primary pH standards (1)", in which (1) refers to the IUPAC 2002 document).	Agreed.
US 048		3.2		Ed	For readability, prefer the indication of the strength of the solution prior to composition.	Use, for example, "Solution of potassium hydrogen phthalate, 0.050 mol·kg ⁻¹ KHC ₈ H ₄ O ₄ ," rather than , "Solution of potassium hydrogen phthalate KHC ₈ H ₄ O ₄ - 0.050 mol·kg ⁻¹ ". Suggest to use this convention for all similar instances.	Agreed
US 049		3.2		Ed	Again, for readability, suggest to follow convention	"Solution of potassium dihydrogen phosphate and of	Agreed

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					above. Also, for cases of binary solutions, indicate units after both quantities.	sodium hydrogen phosphate, 0.025 mol·kg ⁻¹ KH ₂ PO ₄ + 0.025 mol·kg ⁻¹ Na ₂ HPO ₄ ”	
PL 050		3.2	p. 6-8	te	IUPAC 2002 listed typical values of the pH(PS) of the seven solutions from the six accepted primary standard reference buffers	add potassium m dihydrogen citrate	We don't think so. We have included only commonly used buffers. <i>Note.</i> All values given in this project were checked by VNIIFTRI used the primary method of pH measurement and compared with the data of the EAWG key comparisons. Potassium dihydrogen citrate is not used in Russia in the legal metrology area. Therefore, we did not carry out experimental confirmation of this pH value. Moreover, the EAWG international comparisons for measuring potassium dihydrogen citrate has not be carry out as well. So, in our opinion, it isn't right to include the data in the table of the Project. If some country will need that data they may use the data of the IUPAC 2002. The data of Ionic strength of potassium dihydrogen and hydrogen citrate we delated from Table B2.
IR11 051		3.2 and table 1		ge	Improve the wording Solution of potassium dihydrogen phosphate and of sodium hydrogen phosphate KH ₂ PO ₄ + Na ₂ HPO ₄ - 0.025 + 0.025 mol·kg ⁻¹ ;	Use square brackets [] or ; instead – for showing concentration and both of digit should have unit	Agreed
PL 052		3.3	p. 5	ed	278,15; 323,15	278.15; 323.15	Agreed

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IR14 053		3.4 , 3.5 and contents		ge	Replace APPENDIX with Annex		Agreed
PL 054			p. 7 Table 1 column 3	te	4	4.000	Agreed
PL 055			p. 8 Table 2, column 3	te	4 3	4.302 3.800	Agreed
IR6 056		2		ge	Follow the rules apply to the presentation of the element “terms and definitions” of OIML Publications by refer to OIML B 6-2:2019, A.2.		Agreed
PL 057		Appendix A	p. 9	te/ed	gas constant: $R = 8.314\,4626\,(18)\,\text{J}\cdot\text{K}^{-1}\cdot\text{mol}^{-1}$ Faraday constant: $F = 96485.33\,212\,(33)\,\text{C}\cdot\text{mol}^{-1}$	$R = 8.314\,462\,618\,\text{J}\cdot\text{K}^{-1}\cdot\text{mol}^{-1}$ $F = 96\,485.332\,12\,\text{C}\cdot\text{mol}^{-1}$	Agreed.
US 058		Appendix A	Table 2	Ed	“Name of chemical substances, included in the composition of standard-titers”. “Titer” is a term applied to titrimetry.	Use “buffer” instead.	Agreed
US 059		Appendix A	Table 2	Ed, te	The column header indicates mass to make 1 L volume at 293.15K, g.	All other units are in mol kg ⁻¹ . This should be consistent and reflect gravimetric preparation. Use “mass to make 1 kg solution at 293.15 K, g.”	Agreed.
US 060		Appendix A	Table 2	Ed	“Reproducible pH value at the temperature of 298.15 K, measured in the Harned cell”. Not clear what is meant by “reproducible” since primary pH may exhibit batch-to-batch variation.	Suggest use of “nominal” rather than “reproducible”.	Agreed. We changed to “nominal”
US 061		Appendix A	Table 2	Ed	“Saturated at 298,15 K”	Use “298.15 K”.	Agreed
US 062		Appendix B		Ed/Te	“R – gas constant: $R = 8.314\,4626\,(18)\,\text{J}\cdot\text{K}^{-1}\cdot\text{mol}^{-1}$; F – Faraday constant: $F = 96485.33\,212\,(33)\,\text{C}\cdot\text{mol}^{-1}$ [8].”	Update with current CODATA values.	Agreed. The values are correct. The presentation of them were incorrect. We changed the places of the links.
US 063		Appendix B		Ed	Regarding editorial style, is it necessary to follow equations with a comma (“,”)? This can affect readability and clarity. If possible, please remove.		Agreed.
PL 064		Appendix B	p. 10	ed	no reference in the text to the Table B3	(...) and <i>I</i> is the ionic strength of the buffer (Table B3)	Agreed.
PL 065		Appendix B	p. 12	ed	Table 3 (cont.)	Table B3 (cont.)	Agreed.

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US 066		Appendix B	Table B2	Ed	Indicate a reference for values in column labelled “A”.		Agreed.
US 067		Appendix B	Table B3	Ed	Table formatting makes it difficult to follow	Adjust formatting for clarity in next revision	Agreed.
IR17 068		APPENDIX A And APPENDIX B	Table and formula	ge	Numbers given to the clauses, subclauses, tables, figures of an annex shall be preceded by the letter assigned to that annex (e.g. “A.1.2”, “Table A.1” Table 2 - Technical characteristics of the primary pH standards	Table A.1- Technical characteristics of the primary pH standards	Agreed.
IR18 069		APPENDIX A And APPENDIX B	Tables and formula	ge	Tables and formula in each annex shall be numbered independently.		Agreed.
IR1 070		Contents:		ed	Improve the wording (“:” is not needed after content)	Contents	Agreed.
DE 071		Note 1	Table 1	ed	“0.003 ÷ 0.004”	Change to “0.003 – 0.004”	Agreed.

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