



CALIFORNIA DEPARTMENT OF
FOOD & AGRICULTURE

Karen Ross, Secretary

February 5, 2021

DMS Notice
G – 21 – 02
Discard: January 2022

TO: WEIGHTS AND MEASURES OFFICIALS

SUBJECT: 2021 Field Reference Manual and Revision Index

The 2021 Field Reference Manual (FRM) and Revision Index are now posted and available on the Division of Measurement Standards' (DMS) website at:

www.cdfa.ca.gov/dms/publications.html

On December 16, 2019, the Office of Administrative Law approved the proposed amendments to the Electric Vehicle Fueling Systems Specifications in the CCR Title 4, §§ 4001 and 4002.11. These changes are effective January 1, 2020.

On January 23, 2020, the Office of Administrative Law (OAL) approved the proposed amendments to the Hydrogen Gas-Measuring Devices Regulation in CCR Title 4, Sections 4001 and 4002.9. These changes are effective upon filing on January 23, 2020. An Erratum Notice Memo was Filed by OAL on February 5, 2020, to correct a publication error of the final text of the regulation.

On May 4, 2020, the Office of Administrative Law (OAL) approved the proposed amendments to the Fireplace and Stove Wood in CCR Title 4, Sections 4530 through 4536.2. These changes are effective upon filing on July 1, 2020.

The Revision Index, as well as the NIST Handbooks' Index of Amendments and Editorial Changes, are included as an attachment to this Notice.

If you have any questions, please contact DMS, at (916) 229-3000 or by email at dms@cdfa.ca.gov.

Sincerely,

Kristin Macey
Director

cc: Hyrum Eastman, County/State Liaison, CDFA

Attachment



2020 Field Reference Manual Revision Index

On January 23, 2020, the Office of Administrative Law (OAL) approved the proposed amendments to the Hydrogen Gas-Measuring Devices Regulation in CCR Title 4, Sections 4001. and 4002.9.

§ 4001.

3.39 Hydrogen Gas-Measuring Devices - Tentative Code

A.2. Exceptions. (c). Devices used for dispensing a hydrogen gas with a hydrogen fuel index lower than 99.97 % and concentrations of specified impurities that exceed level limits.

A.4. Type Evaluation.

T.2. Tolerances.

Table T.2.

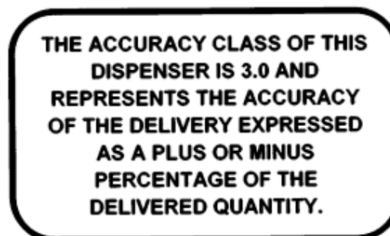
§ 3.39. 4002.9. Hydrogen Gas-Measuring Devices Hydrogen Gas-Measuring Devices

A.4. Type Evaluation. - The National Type Evaluation Program (NTEP) or California Type Evaluation Program (CTEP) will accept for type evaluation only those hydrogen gas-measuring devices that comply with all applicable requirements of this article.

S.5.2. Location of Accuracy Class 2.0, 3.0, 5.0, 7.0, and 10.0 Information - An additional Accuracy Class statement shall be placed adjacent to the quantity display on the face for the dispenser and shall be conspicuously, legibly, and indelibly marked with a statement such as “The Accuracy Class of this dispenser is XX.0 and represents the accuracy of the delivery expressed as a plus or minus percentage of the delivered quantity”. The lettering shall be in Helvetica or Arial Bold font type, in all capitals, and no less than 3/16 inch (0.48 cm) in height.

Note: The XX.0 is the Accuracy Class as stated on the NTEP Certificate of Conformance or CTEP Certificate of Approval and is part of the identification information required in paragraph S.5. The rating represents the allowable limits of error expressed as a plus and minus value.

EXAMPLE:



T.2. Tolerances. - The tolerances for hydrogen gas-measuring devices are listed in Table T.2. Accuracy Classes and Tolerances for Hydrogen Gas-Measuring Devices.

Table T.2. Accuracy Classes and Tolerances for Hydrogen Gas-Measuring Devices Used to Measure Hydrogen Gas as a Vehicle Fuel.

Accuracy Class.	Acceptance Tolerance.	Maintenance Tolerance.
2.0	1.5 %	2.0 %
3.0	2.0 %	3.0 %
5.0	4.0 %	5.0 %
7.0	5.0 %	7.0 %
10.0	5.0 %	10.0 %

In Table T.2., above, the tolerance values for Accuracy Class 10.0 hydrogen gas-measuring devices are applicable to devices installed prior to January 1, 2018.

Note: Authority cited: Sections 12027 and 12107, Business and Professions Code. Reference: Section 12107, Business and Professions Code.

On May 4, 2020, the Office of Administrative Law (OAL) approved the proposed amendments to the Fireplace and Stove Wood in CCR Title 4, Sections 4530 through 4536.2. These changes are effective upon filing on July 1, 2020.

§ 4530. Method of Sale. The method of sale of fireplace and stove wood shall conform to the requirements published in the 2019 edition of National Institute of Standards and Technology (NIST) Handbook 130, *Uniform Laws and Regulations in the Areas of Legal Metrology and Fuel Quality*, “IV. Uniform Regulations, Section B. Uniform Regulation for the Method of Sale of Commodities, Section 2. Non-Food Products, Section 2.4. Fireplace and Stove Wood,” inclusive, and are herein adopted and incorporated by reference with the additional requirements in this article.

§ 4531. Additional Requirements for Kindling. Whenever kindling is included as part of the represented quantity of packaged or non-packaged fireplace or stove wood and is ten percent or more by volume of the represented quantity, the percentage of kindling, within five percent by volume, shall be stated on the label or delivery ticket or sales invoice.

§ 4533. Kindling. through § 4536.2. Bundles and Bags of Firewood. [Repealed]

Note: Authority cited: Sections 12024.11, 12027 and 12107.1, Business and Professions Code. Reference: Sections 12024.11 and 12107.1, Business and Professions Code; and *California Hotwood, Inc. v. Henry Voss, et al.* (Super. Ct. San Joaquin County, 1991, No. 234613).

NIST Handbooks - Amendments and Editorial Changes:

[NIST HB 44, 2020 Edition](#): Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices

Amendments/Editorial Changes [DOC](#) | [PDF](#)

[NIST HB 130, 2020 Edition](#) - Uniform Packaging and Labeling Regulation – Chapter 4, Uniform Regulations

Amendments/Editorial Changes [PDF](#)

[NIST HB 133, 2020 Edition](#) - Checking the Net Contents of Packaged Goods

Amendments/Editorial Changes [DOC](#) | [PDF](#)

The following tables lists the codes, paragraphs, and pages in which the 104th National Conference on Weights and Measures made amendments. In the column headed “Action,” changes are noted as “added,” “amended,” “deleted,” or “renumbered.” Each code, section, or paragraph that has been changed will be noted as “Added 2019” or “Amended 2019.”

2019 HB 44 Amendments to the 2020 Edition					
SECTION	CODE	S&T ITEM NO.	PARAGRAPH	ACTION	PAGE
1.10.	General	GEN-2	G-S.8.2.	Added	1-9
2.20.	Scales	SCL-1	S.1.1.1.(c)	Added	2-7
			UR.2.10.	Added	2-49
		SCL-5	S.1.11.	Amended	2-13
			S.1.11.1., S.1.11.2.	Added	2-13
2.21.	Belt-Conveyor Scale Systems	BCS-1	S.1.3.1.	Amended	2-59
			S.1.3.3.	Added	2-60
			S.1.9.	Amended	2-61
			S.4.	Added. Subsequent paragraphs renumbered	2-62
			S.5.	Renumbered from S.4. and Amended	2-62
			S.6. and Table S.6.	Renumbered from S.5. and Table S.5. and updated to reflect the revised Table number	2-63

2019 HB 44 Amendments to the 2020 Edition

SECTION	CODE	S&T ITEM NO.	PARAGRAPH	ACTION	PAGE
			N.1.	Amended	2-63
			N.2.1.	Amended	2-64
			N.2.2.	Amended	2-64
			N.2.3.1. and N.2.3.2.	Amended	2-65
			N.3.1.2. and N.3.1.3.	Amended	2-66
			N.3.2.	Amended	2-66
			N.3.2.1.	Amended	2-67
			T.1., T.1.1.	Amended	2-68
			T.2.1.	Amended	2-69
			T.2.2.	Added	2-69
			UR.3.(a), Table UR.3.	Amended	2-72
2.22.	Automatic Bulk Weighing Systems	ABW-2	S.1.6.	Amended	2-78
2.24.	Automatic Weighing Systems	AWS-2	S.1.3.	Amended	2-97
		AWS-3	S.3.2.	Amended	2-99
3.30.	Liquid- Measuring Devices	LMD-1	S.2.2.	Amended	3-12
		LMD-2	N.4.6.	Renumbered from N.4.1.2. and Amended	3-20
			T.3.	Amended	3-21
		LMD-3	A.1., S.1.6.10., S.2.5., S.4.4.1., S.4.4.2., S.5., N.4.4.2., UR.2.4., UR.2.5.	Amended	3-5 to 3-43
LMD-5	UR.3.4.	Amended	3-24		
3.31.		VTM-2	S.2.2.	Amended	3-34

2019 HB 44 Amendments to the 2020 Edition

SECTION	CODE	S&T ITEM NO.	PARAGRAPH	ACTION	PAGE
	Vehicle-Tank Meters	VTM-3	N.4.7.	Renumbered from N.4.1.2. and Amended	3-40
			N.4.1.2.	Renumbered from N.4.1.3.	3-39
			T.3.	Amended	3-42
3.32.	LPG and Anhydrous Ammonia Liquid- Measuring Devices	LPG-1	S.2.2.	Amended	3-52
		LPG-2	S.2.5.	Amended	3-53
		LPG-4	N.4.4.	Renumbered from N.4.1.2. and Amended	3-57
			T.3.	Amended	3-57
3.33.	Hydrocarbon Gas Vapor- Measuring Devices	HGV-1	S.2.2.	Amended	3-65
		HGV-2	N.4.3.	Renumbered from N.4.1.2. and Amended	3-67
			T.2.	Amended	3-68
3.34.	Cryogenic Liquid- Measuring Devices	CLM-2	S.2.5.	Amended	3-78
		CLM-3	N.5.3.	Renumbered from N.5.1.1. and Amended	3-81
			T.4.	Amended	3-82
3.35.	Milk Meters	MLK-1	S.2.3.	Amended	3-89
		MLK-2	N.4.4.	Renumbered from N.4.1.1. and Amended	3-92
			T.3.	Amended	3-92
3.36.	Water Meters	WTR-1	S.2.1.	Amended	3-99
		WTR-2	N.4.4.	Renumbered from N.4.1.1. and Amended	3-102
3.37.	Mass Flow Meters	MFM-2	S.1.3.3.	Amended	3-108
		MFM-3	S.2.9.	Added	3-110
		MFM-1	S.3.5.	Amended	3-111

2019 HB 44 Amendments to the 2020 Edition

SECTION	CODE	S&T ITEM NO.	PARAGRAPH	ACTION	PAGE
		MFM-4	S.5.1.	Amended	3-114
		MFM-6	N.6.3.	Renumbered from N.6.1.1. and Amended	3-116
			T.3.	Amended	3-117
3.38.	Carbon Dioxide Liquid- Measuring Devices	CDL-3	S.2.5.	Amended	3-125
		CDL-4	N.4.5.	Renumbered from N.4.1.1. and Amended	3-134
			T.2.1.	Amended	3-134
3.39.	Hydrogen Gas- Measuring Devices	HGM-4	S.2.8.	Added	3-141
		HGM-3	S.3.3.	Amended	3-141
		HGM-5	N.6.2.	Renumbered from N.6.1.1. and Amended	3-145
			T.3.	Amended	3-146
		HGM-6	Preamble	Deleted references to the “tentative” status and designated the Code as “permanent”	3-139
			A.2.(c).	Amended	3-139
			N.2., N.3., N.4.2., N.4.3.	Amended	3-145
3.40.	Electric Vehicle Fueling Systems	EVF-2	S.2.8	Added	3-156
		EVF-1	S.3.3.	Amended	3-157
		EVF-4	Definition for “power factor”	Amended	3-166
5.55.	Timing Devices	TIM-1	S.4.	Amended	5-43

2019 HB 44 Amendments to the 2020 Edition

SECTION	CODE	S&T ITEM NO.	PARAGRAPH	ACTION	PAGE
5.54.	Taximeters	TXI-1	N.1.3.2.1.	Deleted and renumbered subsequent paragraph.	5-35
5.56.(a)	Grain Moisture Meters	GMA-1	S.2.5.	Amended	5-52
		GMA-2	Table S.2.5.	Amended	5-53
5.58.	Multiple Dimension Measuring Devices	MDM-1	S.1.11.	Amended	5-86
Appendix D	Definitions	HGM-6	audit trail	Amended to include references to 3.39. and other relevant codes	D-5
			calibration parameter		D-8
			configuration parameter		D-9
			discharge hose		D-11
			discharge line		D-11
			equipment, commercial		D-12
			event counter		D-12
			event logger		D-12
			point-of-sale system		D-22
			remote configuration capability		D-24
			retail device		D-24
			wet hose		D-30
		wet hose-type	D-30		
		HGM-6	automatic temperature or density compensation	Amended to add a reference to "hydrogen gas"	D-6

2019 HB 44 Amendments to the 2020 Edition

SECTION	CODE	S&T ITEM NO.	PARAGRAPH	ACTION	PAGE
		HGM-6	minimum measured quantity	Added	D-18
			non-resettable totalizer	Added	D-20

2019 HB 44 Editorial Changes to the 2020 Edition

SECTION	CODE	PARAGRAPH	ACTION	PAGE
3.30	Liquid-Measuring Devices	Table 1. Money-Value Divisions and Maximum Allowable Variations for Money-Value Computations on Mechanical Analog Computers	Reformatted the first two columns of the last two rows addressing unit prices from \$0.75/liter (or \$3.00/gal) to \$2.50/liter (or \$10.00/gal) for clarity of application.	3-9
		T.4.	Delete “for results” and make “error” plural to clarify the application of the tolerance.	3-21
3.31	Vehicle-Tank Meters	T.2.	Updated the reference to Table 1 to reflect the change in its title.	3-40
		Table 1, T.2.	Add “Other Than Vehicle-Mounted Milk Meters” to the title of Table 1 to distinguish its scope from that of Table 2.	3-40 and 3-41
		T.2.1.	Delete “for results” and make “error” plural to clarify the application of the tolerance.	3-42

2019 HB 44 Editorial Changes to the 2020 Edition

SECTION	CODE	PARAGRAPH	ACTION	PAGE
3.32	LPG & Anhydrous Ammonia Liquid-Measuring Devices	T.4.	Delete “for results” and make “error” plural to clarify the application of the tolerance.	3-58
		Table 1. Money-Value Divisions and Maximum Allowable Variations for Money-Value Computations on Mechanical Analog Computers	Reformatted the first two columns of the last two rows addressing unit prices from \$0.75/liter (or \$3.00/gal) to \$2.50/liter (or \$10.00/gal) for clarity of application.	3-50
Appendix B	Units and Systems of Measurement	Multiple sections, including: <ul style="list-style-type: none"> • 2.1. Origin and Early History of Units and Standards • 2.2. The Metric System • 3.2. Standards of Mass 	Revisions made throughout the Appendix to: (1) reference 2019 actions in the U.S. and internationally to redefine the traceability of mass measurements based on Planck’s constant; and (2) clarify the use and definitions of the International System of Units.	B-3 through B-10
Appendix C	General Table of Units of Measurement	Footnote 9 and 10	Added notice regarding deprecation of U.S. survey foot.	C-8 and C-10
Appendix D	Definitions	unit price	Updated Code References to include 3.39 Hydrogen Gas-Measuring Devices.	D-28

2019 HB 130 Amendments to the 2020 Edition

2.15. SI or SI Units. – SI or SI Units means the International System of Units as established in 1960 by the General Conference on Weights and Measures (CGPM) and interpreted or modified for the United States by the Secretary of Commerce. See the “Interpretation of the International System of Units for the United States” in the “Federal Register” (Volume 73, No. 96, pages 28432 to 28433) for May 16, 2008, and 15 United States Code, Section 205a - 2051 “Metric Conversion.” See also NIST Special Publication 330, *The International System of Units (SI)*, 2019 edition and NIST Special Publication 811, *Guide for the Use of the International System of Units (SI)*, 2008 edition that are available at www.nist.gov/pml/weights-and-measures/publications/metric-publications or by contacting **TheSI@nist.gov**.

(Added 1993) (Revised 2019)

6.3.2. Use of “Net Contents” – When stating the net quantity of contents in terms of fluid measure or numerical count, a quantity declaration may stand alone [e.g., “177 mL (6 fl oz)”] or may include the term “net” or “net contents” either preceding or following the declaration.

(Amended 2019)

11.25. Pillows, Cushions, Comforters, Mattress Pads, Sleeping Bags, and Similar Products. – Those products including pillows, cushions, comforters, mattress pads, and sleeping bags that bear a permanent label as designated by the International Association of Bedding and Furniture Law Officials (**iabflo.org**) or the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS) (**bhgs.dca.ca.gov**) shall be exempt from the requirements for location (Section 8.1.1. Location), size of letters or numbers (Sections 8.2.1. Minimum Height of Numbers and Letters and 8.2.2. Numbers and Letters: Proportion), free area (Section 8.1.4. Free Area), and the declarations of identity and responsibility (Sections 3.1. Declaration of Identity and 5. Declaration of Responsibility: Consumer and Non-Consumer Packages), provided declarations of identity, quantity, and responsibility are presented on a permanently attached label and satisfy the other requirements of this Regulation, and further provided the information on such permanently attached label be fully observable to the purchaser.

(Added 1973) (Amended 2019)

The following items were deemed editorial in nature based on the following criteria: 1) the modified text did not change the meaning or procedure outlined, 2) modified text corrected an omission or clarified how the text was written, or 3) the item itself was reformatted and relocated in the text to make the organization of the content more meaningful.

Note: For the purposes of this table, the **bold, underscored** text indicates new language added and **bold, ~~strikeout~~** text indicates deleted text.

2019 HB 133 Editorial Changes for the 2020 Edition			
Chapter	Section	Action	HB 133 Page
Introduction	A. Source	Updated URL and E-mail	1
	C. Amendments	Updated URL's	1
	H. The International System of Units	Updated acronym for General Conference on Weights and Measures (<u>GIPM CGPM</u>)	2
Chapter 1. General Information	1.3. Sampling Plans	Clarified the instruction to read acceptable lots a <u>9795</u> % probability of passing.	9
Chapter 2. Test Procedures – Packages Labeled by Weight	2.2.5. Other Test Equipment Requirements	1. Mass Standards – Use NIST Handbook 105-1, “Specifications and Tolerances for Reference Standards and Field Standard Weights and Measures – Field Standard Weights (NIST Class F)” (1990) (2019)	17
Chapter 3. Test Procedures – For Packages Labeled by Volume	Table 3-1	Added acronym to title. Code of Federal Regulation (<u>CFR</u>) Reference*	46
	Table 3-8. Test Measures for Animal Bedding	Corrected title: Rectangular and Square Test Measures	101
		(its internal radius is 151. <u>77515</u> mm and its height is 610 mm)	106

2019 HB 133 Editorial Changes for the 2020 Edition

Chapter	Section	Action	HB 133 Page
	Table 3-9. Illustrations of Depth Determinations with Cylindrical Test Measures	The volume was calculated using: <i>Volume in liters = ($\pi r^2 h$ Pi) 3.14159265 (Pi) × 23035.69 mm × 130.12 mm = 9.41 L*</i>	106
	3.15.3. Evaluation of the Test Results and Determination of Pass or Fail	2. If the Average Error is a negative value go to Step 43 on the Inspection Worksheet.	113
Chapter 4. Test Procedures – Packages Labeled by Count, Linear Measure, Area, Thickness, and Combinations of Quantities	4.9. Procedure for Checking the contents of Specific Agriculture Seed Packages Labeled by Count	4.2.3. 4.9.3. Evaluation of Results	137
Appendix C. Model Inspection Report Forms	Measurement Grid and Package Error Worksheet for Cylindrical and Square or Rectangular Test Measures	Editorial change: C. Average Depth (Sum of Measurements ÷ 269):	185
Appendix E. General Tables of Units of Measurement	Footnote 9 and 10	Added notice regarding deprecation of U.S. survey foot.	219 and 221
Appendix F. Glossary	Sample Correction Factor	The factor as computed is the ratio of the 97.5 95th quantile of the student's t distribution (one-sided) with (n - 1) degrees of freedom and the square root of n where n is the sample size.	240

2019 HB 133 Editorial Changes for the 2020 Edition

Chapter	Section	Action	HB 133 Page
	Sample Error Limit (SEL)	The SEL value allows for the uncertainty between the average error of the sample and the average error of the inspection lot with an approximately 97.5 95 % level of confidence.	240

**2019 Field Reference Manual Revision Index
Revised Sections**

See the 2019 Field Reference Manual Revision Index for changes to the language in;

NIST Handbook 44 §§4000, 4001, & 4002,

NIST Handbook 130 §§ 4510, 4511, & 4512 and

NIST Handbook 133 § 4600.

NEW: NIST Handbook 133-2019 (current edition) is now part of the 2019 Field Reference Manual CCR Chapter 11, §4600. National Uniformity.

The Office of Administrative Law approved the proposed amendments to the Natural Gas Motor Vehicle Fuel Specifications that became effective in April 1, 2018:

- CCR Title 4, Div. 9, Ch. 1 §§ 4001 and 4002.10 and
- CCR Title 4, Div. 9, Chapter 7, §§ 4200, 4201, 4206 and 4207.

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