



CALIFORNIA DEPARTMENT OF
FOOD & AGRICULTURE

Extracts from the
CALIFORNIA CODE OF REGULATIONS
TITLE 4, DIVISION 9

WEIGHTS AND MEASURES FIELD REFERENCE MANUAL (2021)

Chapter 11

**Section 4600. Sampling and Testing Procedures for Determining the Net
Contents of Packaged Commodities**

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CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE
DIVISION OF MEASUREMENT STANDARDS

DISCLAIMER

This document represents the Division of Measurement Standards' field manual for enforcing regulations pertaining to weights and measures in California. This field manual is not to be considered as the official Code of Regulations, as published by Barclays Law Publishers.

To find the latest online version of the California Code of Regulations (CCR) Title 4, Division 9, visit the California Office of Administration Law (OAL) at:

<http://ccr.oal.ca.gov/linkedslice/default.asp?SP=CCR-1000&Action=Welcome>

The CCR may also be accessed at <http://oal.ca.gov/> by selecting the link Titled "California Code of Regulations" under the list of "Sponsored Links" in the left column on the OAL Home page.

For information concerning the contents of this document, please contact the Division of Measurement Standards by e-mail at dms@cdfa.ca.gov.

NIST Handbook 133 (2018 Edition) - Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices as adopted by the 104th National Conference on Weights and Measures in July 2019 is available at:

www.nist.gov/pml/wmd/pubs/hb133.cfm

Chapter 11. Sampling and Testing Procedures for Determining the Net Contents of Packaged Commodities

Article 1. Definitions

§ 4600. National Uniformity. Sampling and testing procedures for determining the net contents of packaged commodities shall conform to the latest requirements set forth in the National Institute of Standards and Technology Handbook 133, "Checking the Net Contents of Packaged Goods," which is herein incorporated by reference. Copies of Handbook 133 may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Note: Authority cited: Sections 12027, 12211 and 12609, Business and Professions Code.
Reference: Section 12211, Business and Professions Code.

(NOTE 1: Sections 4601 through 4626 have been REPEALED)

(NOTE 2: NIST Handbook 133 – Checking the Net Contents of Packaged Goods can be downloaded at: <https://www.nist.gov/pml/weights-and-measures/handbook-133-2020-current-version>)

Article 2. Sampling and Testing Procedures for Determining the Net Contents of Packaged Commodities

(Sections 4650 through 4657 have been REPEALED)

2019 Amendments to HB 133 for the 2020 Edition

The following table indicates the items amended by the 104th (2019) National Conference on Weights and Measures (NCWM). As appropriate, the text on the cited pages indicates the changes to a Handbook 133 section, or paragraph as “Added 2019” or “Amended 2019.” Unless otherwise noted, the effective date of the regulations added or amended in 2019 is January 1, 2020.

Chapter	L&R Committee Item No.	Section	Action	HB 133 Page
Chapter 3. Test Procedures – For Packages Labeled by Volume	NET-4	3.4. Volumetric Test Procedures for Viscous Fluids - Headspace	Amended	50
	NET-5	3.7. Volumetric Test Procedure for Paint, Varnish, and Lacquers – Non-Aerosol	Amended	55
Chapter 4. Test Procedures – Packages Labeled by Count, Linear Measure, Area, Thickness, and Combinations of Quantities	NET-6	4.8. Procedure for Checking the Area Measurement of Chamois	Amended	132
	NET-7	4.11. Softwood Lumber	Added	143
	NET-8	4.10. Structural Plywood and Wood-Based Structural Panels	Added	137

2019 Editorial Changes for the 2020 Edition

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.

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 (GIPM CGPM)	2
Chapter 1. General Information	1.3. Sampling Plans	Clarified the instruction to read acceptable lots a 9795 % 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 (CFR) Reference*	46
	Table 3-8. Test Measures for Animal Bedding	Corrected title: Rectangular and Square Test Measures	101
	Table 3-9. Illustrations of Depth Determinations with Cylindrical Test Measures	(its internal radius is 151. 77515 mm and its height is 610 mm)	106
		The volume was calculated using: $Volume\ in\ liters = (\pi r^2 h \ Pi)$ $3.14159265 (\Pi) \times$ $23035.69\ mm \times 130.12\ mm =$ $9.41\ L^*$	106

Chapter	Section	Action	HB 133 Page
	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. <u>4.9.3.</u> 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 <u>95th</u> 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
	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 <u>95</u> % level of confidence.	240

Table of Acronyms

Acronym	Term	Acronym	Term
AAP	Average Adjusted Purge	HB 133	NIST Handbook 133, "Checking the Net Contents of Packaged Goods"
AOSA	Association of Official Seed Analysts	HB 44	NIST Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices"
ASTM	ASTM International	MAV	Maximum Allowable Variation
CFR	Code of Federal Regulations	NCWM	National Conference on Weights and Measures
CGA	Compressed Gas Association	NIST	National Institute of Standards and Technology
EPA	Environmental Protection Agency	PSEL	Purge Sample Error Limit
FDA	Food and Drug Administration	SCF	Sample Correction Factor
FDCA	Food, Drug, and Cosmetic Act	SEL	Sample Error Limit
FPLA	Fair Packaging and Labeling Act	TTB	Alcohol and Tobacco Tax and Trade Bureau
FSIS	USDA, Food Safety and Inspection Service	UPLR	Uniform Packaging and Labeling Regulation
FTC	Federal Trade Commission	USDA	U.S. Department of Agriculture
HB 130	NIST Handbook 130, "Uniform Laws and Regulations in the areas of Legal Metrology and Fuel Quality"		

Introduction

A. Source.

The information and procedures in this handbook comprise all of those adopted by the National Conference on Weights and Measures, Inc. (NCWM). Contact NCWM at:

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The NCWM is supported by the National Institute of Standards and Technology (NIST), which provides its Executive Secretary and publishes its documents. NIST also develops technical publications for use by weights and measures agencies; these publications may subsequently be endorsed or adopted by the NCWM or its members.

This handbook is recommended by NCWM for adoption by states when reviewing or amending their official laws and regulations on testing the net contents of packaged goods. A similar recommendation is made with regard to the local jurisdictions within a state in the absence of the promulgation of such laws and regulations at the state level.

(Amended 2019)

B. Purpose.

This handbook has been prepared as a procedural guide for the compliance testing of net content statements on packaged goods. Compliance testing of packaged goods is the determination of the conformance of the results of the packaging, distribution, and retailing process (the packages) to specific legal requirements for net content declarations. This handbook has been developed primarily for the use of government officials. However, commercial and industrial establishments packaging, distributing, and selling commodities will find this handbook useful.

In conducting compliance testing, the conversion of quantity values from one measurement system to another (e.g., from the metric system to the U.S. customary system) should be handled with careful regard to the implied correspondence between the accuracy of the data and the number of digits displayed. In all conversions, the number of significant digits retained should ensure that accuracy is neither sacrificed nor exaggerated. For this 2020 edition of NIST Handbook 133, "Checking the Net Content of Packaged Goods" all dimensions for test procedures, devices, or environments have been rounded to two significant digits (e.g., 2.5 cm to 1.0 in) or to a precision level applicable to the test equipment (e.g., 200 kPa for 25 psi and 35 MPa for 5000 psi).

C. Amendments

Amendments to NIST Handbook 133 are deliberated and developed by NCWM's Committee on Laws and Regulations before presentation to the general membership for a vote. In some instances, amendments that significantly affect other NIST Handbooks may be processed jointly by two or more committees.

Amendments to the handbooks are made in accordance with NCWM procedures and policies. The process begins at the regional weights and measures association meetings in the fall of each year and is culminated at the NCWM Annual Meeting in July. After passing through one or more of the regional associations, the proposed amendment is placed on the agenda of the appropriate NCWM committee for consideration at the NCWM's Interim Meeting in January. After final deliberation and development by the committee, the amendment may be presented to the membership for a vote at the NCWM Annual Meeting in July. The NCWM policy provides for exceptions to the process to accommodate urgent or priority items. NIST staff provides technical assistance and advice throughout the process.

The policy is available on the NCWM website at www.ncwm.com. For information on the regional weights and measures associations, visit www.ncwm.com/other-links.

D. Revisions to the Handbook

NIST publishes a new edition of this handbook after significant changes are made. If NIST determines that amendments made by NCWM were minor or editorial in nature an annual publication will not be published. Instead, NIST will issue a notice that the current edition is still valid and will publish a list of the changes on the NIST website.

E. Annotation

Beginning in 1971, amendments or additions to sections in the handbook are annotated at the end of each section (e.g., "Amended 1982") as a service to those states that are planning to update their own laws or regulations. The references to each revision and the year will enable government officials and industry members to trace the rationale for the changes by referring to the "Report of the XXX National Conference on Weights and Measures (also known as the NCWM Annual Report) for the year indicated and make decisions regarding adoptions and amendments to their laws and regulations.

F. Effective Enforcement Dates of Regulations

Unless otherwise specified, new or amended sections are intended to become effective and subject to enforcement on January 1 of the year following adoption by NCWM.

G. Section References

In most references made to specific sections or subsections in this handbook, the word "Section" followed by the section number is used.

H. The International System of Units

The “International System of Units,” “SI,” or “SI Units” means the modernized metric system as established in 1960 by the General Conference on Weights and Measures (CGPM). In 1988, Congress amended the Metric Conversion Act of 1975 (see Section 5164 of Public Law 100-418) to declare that it is the policy of the United States to designate the metric system of measurement as the preferred measurement system for U.S. trade and commerce, and it further defined “the metric system of measurement” to be the International System as established by the CGPM and as interpreted or modified for the United States by the Secretary of Commerce. (see Metric Conversion Law 15 U.S.C. 205; NIST Special Publication (SP) 330, “The International System of Units (SI); NIST SP 814, “Guide for the Use of the International System of Units (SI); Interpretation of the International System of Units [the Metric System of Measurement] for the United States in the “Federal Register” of May 16, 2008, [“Federal Register” Vol. 73, No. 96] or subsequent revisions). In 1992, Congress amended the Federal Fair Packaging and Labeling Act (FPLA) to require certain consumer commodities to include the appropriate SI units along with the customary inch-pound units in their quantity statements.

(Amended 2019)

I. “Mass” and “Weight.” [NOTE 1, page 3]

The mass of an object is a measure of the object’s inertial property or the amount of matter it contains. The weight of an object is a measure of the force exerted on the object by gravity or the force needed to support it. The pull of gravity on the earth gives an object a downward acceleration of about 9.8 m/s^2 . In trade and commerce and everyday use, the term “weight” is often used as a synonym for “mass.” The “net mass” or “net weight” declared on a label indicates that the package contains a specific amount of commodity exclusive of wrapping materials. The use of the term “mass” is predominant throughout the world and is becoming increasingly common in the United States.

J. Use of the Terms “Mass” and “Weight.” [NOTE 1, page 3]

When used in this handbook, the term “weight” means “mass.” The term “weight” appears when U.S. customary units are cited or when both inch-pound and SI units are included in a requirement. The terms “mass” or “masses” are used when only SI units are cited in a requirement. The following note appears where the term “weight” is first used in a law or regulation.

NOTE 1: *When used in this law (or regulation), the term “weight” means “mass.” (see paragraphs*

I. “Mass” and Weight and J. Use of the Terms “Mass” and “Weight” in the Introduction section of NIST Handbook 133 for an explanation of these terms.)

(Introduction added 2015)

NIST Handbook 133 (2020 Edition) - Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices as adopted by the 104th National Conference on Weights and Measures in July 2020 is available at:

www.nist.gov/pml/wmd/pubs/hb133.cfm

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