2027 Interim Meeting Agenda
Laws and Regulations (L&R) Committee

Michael Peeler, Committee Chair
New Jersey

INTRODUCTION

The L&R Committee will address the following items in Table A during the Interim Meeting. Table A identifies the agenda items by reference key, title of item, page number and the appendices by appendix designations. The headings and subjects apply to *Handbook 130, Uniform Laws and Regulations in the Areas of Legal Metrology an Engine Fuel Quality, 2026 Edition*, and *Handbook 133, Checking the Net Contents of Packaged Goods, 2026 Edition*. The first three letters of an item's reference key are assigned from the Subject Series List. The next 2 digits represent the year the item was introduced. The acronyms for organizations and technical terms used throughout the agenda are identified in Table B. In some cases, background information will be provided for an item. The fact that an item appears on the agenda does not mean it will be presented to the National Council on Weights and Measures (NCWM) for a vote. The Committee will review its agenda and may withdraw some items, present some items for information meant for additional study, issue interpretations, or make specific recommendations for change to the publications identified, which will be presented for a vote at the Annual Meeting. The Committee may also take up routine or miscellaneous items brought to its attention after the preparation of this document. The Committee may decide to accept items for discussion that are not listed in this document, provided they meet the criteria for exceptions as presented in *NCWM Policy 3.1.4. Handbooks, Procedures to Modify Handbooks*. The Committee has not determined whether the items presented will be voting, informational, assigned for further development, or withdrawn; these determinations will result from its deliberations at the Interim Meeting.

Items may be grouped into "Blocks" if they are:

- **Opposing Items:** Items in direct conflict with each other, and only one may be adopted,
- **Interdependent Items:** Items addressing a similar topic where, if one is adopted, all need to be adopted, and
- **Related Items:** Items addressing a similar topic across multiple codes or regulations.

An "Item Under Consideration" is a statement of proposal and not necessarily a recommendation of the Committee. Suggested revisions are shown in **bold face print** by ~~**striking out**~~ information to be deleted and **underlining** information to be added. Requirements that are proposed to be nonretroactive are printed in ***bold faced italics***. Additional letters, presentations and data may have been part of the committee's consideration. Please refer to www.ncwm.com/publication-15 to review these documents.

In some cases, there may be proposed changes affecting multiple model laws or regulations that share the same purpose or proposed changes to one model law or regulation may be dependent on the adoption of proposed changes to another. The Committee may group such items into "Blocks" to facilitate efficient handling for open hearings and voting. These blocks are identified in the Committee's agenda.

All sessions are open to registered attendees of the meeting. If the Committee must discuss any issue that involves proprietary information or other confidential material; that portion of the session dealing with the special issue may be closed if (1) NCWM Chairman or, in their absence, NCWM Chairman-Elect approves; (2) the Executive Director is notified; and (3) an announcement of the closed meeting is posted on or near the door to the meeting session and at the registration table. If possible, the posting will be made at least a day before the planned closed session.

Note: The policy of NIST is to use metric units of measurement in all its publications; however, recommendations received by NCWM technical committees and regional weights and measures associations have been printed in this publication as submitted. Therefore, the report may contain references to U.S. customary units.

Subject Series List

Handbook 130 – General ..... GEN Series

- Uniform Laws
  - Uniform Weights and Measures Law ..... WAM Series
  - Uniform Weighmaster Law ..... WML Series
  - Uniform Fuels and Automotive Lubricants Inspection Law ..... FLL Series
- Uniform Regulations
  - Uniform Packaging and Labeling Regulation ..... PAL Series
  - Uniform Regulation for the Method of Sale of Commodities ..... MOS Series
  - Uniform Unit Pricing Regulation ..... UPR Series
  - Uniform Regulation for the Voluntary Registration of Servicepersons and Service Agencies for Commercial Weighing and Measuring Devices ..... RSA Series
  - Uniform Regulation for National Type Evaluation ..... NTP Series
  - Uniform Fuels and Automotive Lubricants Regulation ..... FLR Series
  - Uniform E-commerce Regulation ..... ECM Series
- Examination Procedure for Price Verification ..... PPV Series
- NCWM Policy, Interpretations, and Guidelines ..... POL Series

Handbook 133 ..... NET Series

Other Items ..... OTH Series

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Glossary of Acronyms and Terms

Acronym	Term	Acronym	Term
ASTM	ASTM International	NEWMA	Northeastern Weights and Measures Association
API	American Petroleum Institute	NIST	National Institute of Standards and Technology
CFR	Code of Federal Regulations	NCWM	National Council on Weights and Measures
CWMA	Central Weights and Measures Association	OWM	Office of Weights and Measures
FALS	Fuels and Lubricants Subcommittee	PALS	Packaging and Labeling Subcommittee
FDA	Food and Drug Administration	S&T	Specifications and Tolerances
FTC	Federal Trade Commission	SAE	SAE International
HB	Handbook	SWMA	Southern Weights and Measures Association
ILMA	Independent Lubricant Manufacturers Association	UPLR	Uniform Packaging and Labeling Regulation
L&R	Laws and Regulations	USDA – FSIS	U.S. Department of Agriculture – Food Safety and Inspection Service
LPG	Liquefied Petroleum Gas	USNWG	U.S. National Work Group
MAV	Maximum Allowable Variation	WWMA	Western Weights and Measures Association

Details of All Items
(In order by Reference Key)

MOS – UNIFORM REGULATION FOR THE METHOD OF SALE OF COMMODITIES

MOS-27.3 1.12. Ready-to-Eat Food

Source
New Jersey Weights and Measures

Purpose:
Create clarity surrounding restaurant-style foods, consumer habits, and methods of sale.

Item under Consideration:
Amend NIST Handbook 130 Uniform Regulation for the Method of Sale of Commodities as follows:

1.12. Ready-to-Eat Food.

1.12.1. Definition. – ~~**Restaurant style food**~~ **Meals or portions of prepared foods** offered or exposed for sale, whether in restaurants, supermarkets, or similar food service establishments, that ~~**is**~~ **are** ready for immediate human consumption, though not necessarily on the premises where sold, ~~**and**~~ which do~~**es**~~ not require any ~~**cooking or heating**~~ **further** preparation by the customer, **and which are serve or transferred to the customer through a direct service counter**. Ready-to-eat food does not include sliced luncheon products, such as meat, poultry, or cheese when sold separately.

~~**Some examples of ready-to-eat food items: (This list is not intended to be all inclusive.)**~~
~~**· servings of pasta, potato, or coleslaw;**~~
~~**· servings of salads, vegetables, or grains such as rice;**~~
~~**· pizzas, whole or sliced;**~~
~~**· meat/vegetable pockets/pies;**~~
~~**· tacos, fajitas, enchiladas, tostadas;**~~
~~**· cooked, whole chickens or turkeys;**~~
~~**· buckets, tubs, or individual pieces of cooked chicken or fish;**~~
~~**· cooked ribs by the slab or piece;**~~
~~**· stuffed clams, oysters, shrimp, and fish;**~~
~~**· cooked shrimp or crab cakes;**~~
~~**· slices of cake, pie, or quiche;**~~
~~**· donuts, bagels, or rolls for individual sale;**~~
~~**· cookies or brownies for individual sale;**~~
~~**· sandwiches, eggs, or spring rolls;**~~
~~**· servings of prepared chili or soup;**~~
~~**· stuffed peppers, tomatoes, and cabbage;**~~
~~**· knishes; and**~~
~~**· pickles.**~~

NOTE: The sale of an individual piece of fresh fruit (like an apple, banana, or orange) is allowed by count. (Added 2004) (Amended 2017, **20XX**)

1.12.2. Method~~s~~ of Sale. – Ready-to-eat food **prepared and** sold ~~**from retail cases displaying product in bulk or in servings prepared**~~ on the premises may be sold by weight, measure, or count (i.e., by piece, portion, or serving) **if served or transferred to the customer from a direct service counter**. If pre-packaged, the product shall have the appropriate statement of quantity set forth in the current edition of NIST Handbook 130, Uniform Packaging and Labeling Regulation (UPLR).
(Amended 1993) (Amended 2017 ~~**and,**~~ 2023**, and 20XX**)

Previous Status:
2027: New Proposal

Original Justification:
Prior justifications for defining ready-to-eat food included changing consumer habits and the need for supermarkets to compete with restaurants and other retail food establishments by offering "restaurant-style foods". Consumer habits continue to change, as do the offerings from restaurants and supermarkets, which causes confusion for businesses and regulators under the current language.

When using the term "restaurant-style foods", one has to look at what occurs in a restaurant. When ordering from a restaurant, a customer sits down to order, orders from a kiosk or counter, or orders from an app; the food is prepared and served by an employee, packaged and given to us by an employee, or delivered to our door by an employee of the restaurant or a delivery service. Aside from a few niche restaurants, customers rarely prepare food and serve themselves.

When a customer goes to a supermarket, they can choose from prepared food that is in display cases where they can grab it and walk away; or order from a kiosk or direct service counter, where it is given to them by an employee. But most often, the meals and portions of prepared foods are pre-packaged, and the customer has no contact with an employee; rather, they choose something and walk away.

The key difference is whether a customer is served or serves themselves. If a customer has to ask for a meal or portion of prepared food at a direct service counter, it may be sold by the piece, serving, or portion, as they would expect at a restaurant. A pre-packaged meal or portion of prepared food that is readily available for a customer to take without requesting it should have an appropriate net content statement as outlined in the current edition of NIST Handbook 130, Uniform Packaging and Labeling Regulation.

Some consumers like to eat cold pizza or cold chicken, neither of which requires reheating if previously cooked. Both of these products are available hot and cold in supermarkets, with different requirements for method of sale and net content statement requirements, depending on the location in which they are offered for sale. While the hot versions of these foods may allow customers to make value comparisons with restaurants, they cannot make the same value comparison with the cold versions of these foods, which often appear in a nearby case in the supermarket.

The Council has recently moved towards removing lists and examples from our Handbooks. Examples, by nature, are never all-inclusive and can create grey areas. In this case, as consumer habits shift, or retailers introduce new products, additional examples may need to be added for clarification.

Replacing the term "restaurant-style food" with "meals or portions of prepared food", and adding "direct counter service" gives more clarity to both retailers and regulators. Removing "cooking or heating" and replacing it with "further preparation" updates a shift in consumer habits. Striking the list of examples is consistent with other proposals adopted by NCWM.

Opposing arguments:
Opponents may indicate that this would require additional labeling and inhibit the sales of ready-to-eat meals in retail food establishments. Some regulators may insist that a list of examples is needed.

The submitter requests that this be a Voting Item in 2027.

Comments in Favor:

Regulatory:
-

Industry:
-

Advisory:
-

Comments Against:

Regulatory:
-

Industry:
-

Advisory:
-

Neutral Comments:

Regulatory:
-

Industry:
-

Advisory:
-

Item Development:
New Proposal in 2027

Regional Associations' Comments:
New Proposal in 2027

CWMA 2026 Interim Meeting:

One regulator opposed this change but did like the intent.

Another regulator liked the idea of keeping the examples because the examples provide guidance for new inspectors.

On line 13 the word "serve" should be "served".

The committee recommends a developing status.

WWMA 2026 Annual Meeting:

Mr. Robbie Parke (Washington Department of Agriculture) supported the intent of the proposal and the removal of lists from the handbook. He asked if "direct service counter" should be defined and if this would include a cash register or a deli-style counter. Mr. Parke recommended a DEVELOPING status.

Mr. Steve Harrington (Oregon Weights & Measures) noted that lists can help guide inspectors. He spoke to the distinction between a restaurant and a store, noting that the marketplace is complex. Mr. Harrington recommended a DEVELOPING status.

Mr. Mahesh Albuquerque (Colorado Division of Oil and Public Safety – Representing Aaron Yanker, Colorado Department of Agriculture Weights & Measures) questioned the merit and development of this item. He also noted that if the item moves forward 1.1.2.1. and 1.1.2.2. should be separated into two sections. He recommended the item be WITHDRAWN.

Mr. John McGuire (NIST OWM) stated that NIST is in the process of developing their L&R analysis. Mr. McGuire also noted that NIST had a special work group for this. His recommendation was that the item be ASSIGNED.

Mr. Kurt Floren (County of Los Angeles, California) had concerns about lists and asked Mr. McGuire about the former task group from 2016-2017. He recommended a DEVELOPING status.

Mr. Kevin Schnepp (California Division of Measurement Standards) echoed that lists can be both beneficial and limiting, he suggested the use of a "notes" section rather than the inclusion of lists and recommended a DEVELOPING status.

Mr. Floren asked Mr. McGuire about the recommended assigned status; would the item be assigned to the former task group or a new one? Mr. McGuire stated that NIST OWM is looking to assign the item to a hybrid group that would include both former and new members to work on this item.

Based on the comments heard during open hearings, the WWMA L&R Committee recommends a DEVELOPING status for this item. The committee further recommends that the NCWM L&R Committee consider the forming of a task group to address the concerns expressed on this item.

NEWMA 2026 Interim Meeting:

A Regulator from NJ questioned whether items like donuts and pickles should be considered restaurant-style foods and emphasized that the proposal is intended to clarify when net content statements are required. In-store prepared foods may be sold by the count when requested from staff at a service counter. If packaged food is displayed for customers to grab and take, it must have a net content statement consistent with HB 130 UPLR Section 6.4. The proposal would also remove the list of examples. Foods behind the counter may be sold by count when they are a meal or portion of a meal. NJ recommends Developing status so the submitter can continue addressing feedback.

A Regulator from VT supports the proposal and removal of the examples but recommends replacing "Ready- Eat" to-with "Made-to-Order" to avoid including packaged foods such as cereal and crackers.

Regulators from NY and NH agree with NJ's recommendation for removal of the example list, and for the item to be Developing.

The committee recommends a developing status.

SWMA 2026 Annual Meeting:

Submitter recommends voting status.

Paul Floyd representing the state of Louisiana supports this item and recommends voting status.

Alison Wilkinson representing the state of Maryland supports this item and recommends voting status.

Brian Terry representing the state of Arkansas supports this item but recommends a developing status due to confusion with methods of sale for items that already have a method of sale already in the NIST Handbook 130 and states with the way the item is written that there could be abuse of the application as written.

Robert Huff representing the state of Delaware supports this item and recommends voting status.

Mauricio Mejia representing the state of Florida supports this item but has concerns with direct service counter and recommends the item be given an informational status.

SWMA Laws and Regulations committee recommends this item to be given voting status.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

MOS-26.2 A 2.21.2. Metered Sales by Liquid Volume.

Source:
National Propane Gas Association

Purpose:
Modify 2.21.2 (b) and (c) of IV. Uniform Regulations B. Uniform Regulation for the Method of Sale of Commodities, to require automatic temperature compensation to be performed electronically to ensure the most immediate reaction time of compensation equipment due to questionable reaction time data for mechanical temperature compensation devices in low flow applications.

Item under Consideration:
Amend NIST Handbook 130 Uniform Regulation for the Method of Sale of Commodities as follows:

2.21.2. Metered Sales by Liquid Volume. – All metered sales by liquid volume shall be accomplished using metering systems as follows:

(a) Sales using metering systems with a maximum rated capacity greater than 20 gal/min shall be accomplished using a metering system that automatically compensates for the effects of temperature.

(b) Sales using metering systems with a maximum rated capacity equal to or less than 20 gal/min that were placed into service after January 1, 202~~6~~7, shall be accomplished by use of a metering system that automatically **and electronically** compensates for the effects of temperature.

(c) Effective January 1, 2034, all metered sales **~~(through all capacities of metering devices, regardless of installation and service date)~~through devices with a maximum rated capacity equal to or less than 20 gal/min that were placed into service prior to January 1, 2027,** shall be accomplished by use of a metering system that automatically **and electronically** compensates for **the effects of** temperature.

Previous Status:
2026: Assigned to the LPG Temperature Compensation Task Group

Original Justification:
Existing data has been presented by way of a Linco-Electromatic, Inc.Technical Paper that calls into question the efficacy of mechanical temperature compensation equipment when connected to low flow pumping or dispensing systems. This paper calls out a reaction time ranging from three to six minutes before adequate compensation begins. With this lag time no single container filled by a LP Gas dispenser would receive compensated product if utilizing a mechanical temperature compensator. To ensure equity for propane sellers and buyers proper and immediately reactive temperature compensation equipment is needed.

The submitter acknowledged that State Weights and Measures officials have stated that during the conduction of meter proving with mechanical temperature compensation they have not witnessed the slow reaction times stated in the Linco-Electromatic, Inc. Technical Paper, although there is a flush performed prior to the actual meter flow test and not from direct start up.

The submitter requested Voting status in 2026.

Comments in Favor:

Regulatory:
- None

Industry:
- None

Advisory:
- None

Comments Against:

Regulatory:
- None

Industry:
- None

Advisory:
- None

Neutral Comments:

Regulatory:
- NCWM 2026 Interim: The Committee heard from multiple weights and measures officials who recommended the item to be Developing or Assigned to a Work Group. They expressed concerns regarding the additional burden placed on the industry, the availability of these devices as well as their suitability and accuracy under normal testing conditions. Most of them concurred on the need for a study to obtain sound data supporting an electronic temperature compensation requirement.

Industry:
- NCWM 2026 Interim: Representatives from the National Propane Gas Association and Meter Manufacturers Association recommended the item be assigned to a Work Group.

Advisory:
- NCWM 2026 Interim: The representative of NIST OWM supported the item to be Developing or assign it to a Work Group.

Item Development:
NCWM 2026 Annual Meeting: NCWM 2026 Annual: Mr. Christopher Wagner, from the National Propane Gas Association provided the Committee with an update as Chair of the LPG Temperature Compensation Task Group.

He said that following the interim meeting a task group was assigned to coordinate and oversee, in conjunction with industry, the design and execution of a study to determine the effectiveness and cost-efficient viability of electronic temperature compensation.

Task group conducted a kickoff meeting and reviewed all actions taken to date by an independent industry project team. A recommendation was offered to blend the two groups into one, but following consultation with NCWM it was identified that to participate or join an NCWM task group membership is required. NPGA has contacted the Propane Education and Research Council to seek their joining of NCWM so that the proposed funder of the project may participate in the task group.

During the last meeting NPGA sought feedback from W&M officials regarding any need for travel expense reimbursement for participation in witnessing of testing. This funding will be added into the budget of the PERC Docket request once identified.

This item continues to be assigned to the LPG Temperature Compensation Task Group.

Contact: Christopher Wagner
LPG Temperature Compensation Task Group Chair
cwagner@npga.org

NCWM 2026 Interim Meeting:
Taking into consideration the concerns of those that provided comments and the request of the submitter, the Committee decided to recommend that this item be assigned to a Work Group and keep open the effective dates proposed in it. The work group will coordinate and oversee, in conjunction with the industry, the design and execution of a study to determine the effectiveness and cost-efficient viability of electronic temperature compensators in all applications before they become a requirement. Depending on the results of the study, if established the item has merit, the Work Group will recommend final language, any required alignment of it with other publications, and effective dates.

Regional Associations' Comments:

CWMA 2026 Interim Meeting:

No comments were received.

The committee recommends this item remain assigned.

WWMA 2026 Annual Meeting:

WWMA L&R Committee Chair Mr. Matt Douglas recused himself from the open hearings and working sessions for this item.

During open hearings, Acting Chair Mr. Cory Gandara asked for any updates regarding this item.

Mr. Kevin Schnepp (California Division of Measurement Standards) inquired whether any updates have been provided from the task group or the submitter since the last meeting.

Mr. Steve Harrington (Oregon Weights & Measures) asked if anyone could provide an update on this item and recommended an ASSIGNED status.

Mr. Jason Flint (NCWM Chair) stated that he received an email regarding adding additional members to the task group and that work would commence shortly.

Mr. Matt Douglas (California Division of Measurement Standards), speaking as a member of the LPG Temperature Compensation Task Group, stated that the task group has met once and discussed the intention to do testing in order to collect data, but no additional information is available at this time.

Based on the comments heard during open hearings the WWMA L&R Committee recommend this item remain ASSIGNED.

NEWMA 2026 Interim Meeting:

A representative from NPGA recommends that this remains in Assigned status. Since initial meetings conducted with the NCWM assigned task group, a request was submitted to NCWM seeking the addition of 10 additional members to the task group. The requested individuals included NIST, meter manufacturers, dispenser manufacturers, and the Propane Education and Research Council. These additions need to wait for the next membership year for appointment due to many of them not holding prior membership within NCWM. Upon the opening of the 2027 membership year, all non-members applied, paid dues, and expressed their willingness to participate. NCWM Chair, Jason Flint, has approved the addition of the 10 requested members. It is expected that task group meetings will be recommended for biweekly meetings in late October or early November.

The committee recommends an assigned status for this item.

SWMA 2026 Annual Meeting:

Chris Wagner representing NPGA commented the following:
NPGA recommends that this item remains in assigned status. The task group was formed following the 2026 interim meeting and last met in May of 2026. During this meeting it was identified that no manufacturers or potential funding sources were part of the task group, which was a barrier to proceeding forward. Upon further investigation of NCWM rules it was identified that only NCWM members may serve on assigned item task groups. NPGA lobbied multiple

non-members for consideration of membership and successfully identified four entities who were willing to join NCWM in the 2027 membership year. Upon the opening of the 2027 membership year, all identified parties joined NCWM as dues paying members and agreed to participate in the task group upon agreement and appointment by the NCWM Chair. The NCWM subsequently agreed to the addition of ten requested individuals representing NIST, manufacturers, and a designated funding source (Propane Education and Research Council). NCWM staff has updated the task group roster and mailing list. It is the intent of NPGA to reconvene the task group for biweekly meetings upon the conclusion of the SWMA Annual Conference. These meetings will be conducted on a recurring day of the week that is best suited to maximize attendance with the intent to present a path forward for testing during the NCWM 2027 Interim meeting.

SWMA Laws and Regulations committee recommends this item to be given assigned status.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

MOS-26.3 A Section 2.20 Gasoline and Gasoline Oxygenate Blends

Source:
American Petroleum Institute

Purpose:
Add requirements to the method of sale for liquid measuring devices that perform temperature compensation and/or density correction.

Item under Consideration:
Amend NIST Handbook 130 Uniform Regulation for the Method of Sale of Commodities.

2.20. Gasoline and Gasoline Oxygenate Blends

~~2.20.~~1. **Method of Retail Sale.** – Type of Oxygenate must be Disclosed. **All automotive gasoline or automotive gasoline oxygenate blends shall be sold, offered or exposed for sale in terms of liquid volume by the liter or the gallon.**

2.20.1.1. Wholesale.

(a) Gross - If sold, offered, or exposed for sale on an observed temperature basis it shall be by the liter (defined as 1 liter at the observed temperature) or the gallon (defined as 231 in^3 at the observed temperature).

(b) Temperature Compensation - If sold, offered, or exposed for sale on a temperature compensated basis it shall be by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in3 at 60 °F).
(Added 20XX)

(c) Density correction - An automotive gasoline oxygenate blend that is the result of combining separately measured gasoline or gasoline regulated blendstocks and ethanol, may be sold, offered, or exposed for sale on a density corrected basis by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in3 at 60 °F)
(Added 20XX)
(Amended 20XX)

2.20.12. Method of Retail Sale, Type of Oxygenate must be Disclosed. — – All automotive gasoline or automotive gasoline-oxygenate blends kept, offered, or exposed for sale, or sold at retail containing at least 1.5 mass percent oxygen shall be identified as "with" or "containing" (or similar wording) the predominant oxygenate in the engine fuel. For example, the label may read "contains ethanol" or "with MTBE." The

oxygenate contributing the largest mass percent oxygen to the blend shall be considered the predominant oxygenate. Where mixtures of only ethers are present, the retailer may post the predominant oxygenate followed by the phrase "or other ethers" or alternatively post the phrase "contains MTBE or other ethers." In addition, gasoline-methanol blend fuels containing more than 0.3 % by volume methanol shall be identified as "with" or "containing" methanol. This information shall be posted on the upper 50 % of the dispenser front panel in a position clear and conspicuous from the driver's position in a type at least 12.7 mm (1/2 in) in height, 1.5 mm (1/16 in) stroke (width of type).
(Amended 1996)

2.20.2<u>3</u> <u>Retail Sale,</u> Product Transfer Document (PTD) Requirements. – The retailer shall be provided information that complies with PTD requirements for gasoline, gasoline additives, and gasoline regulated blendstocks **<u>40 C.F.R. § 1090.1110,</u>** at the time of delivery of the fuel, on product transfer documents such as an invoice, bill of lading, shipping paper, or other documentation. Additional declarations may be required for specific fuels **<u>and/or</u> <u>measuring devices:</u>**

(a) For fuels containing multiple oxygenates or oxygenates other than ethanol a declaration of the predominant oxygenate or combination of oxygenates present in concentrations sufficient to yield an oxygenate content of at least 1.0 % by volume in the fuel. Where mixtures of only ethers are present, the fuel supplier may identify either the predominant oxygenate in the fuel (i.e., the oxygenate contributing the largest mass percent oxygen) or alternatively, use the phrase "contains MTBE or other ethers."

(b) For fuels containing more than 0.3 % by volume methanol a declaration shall be identified as "with" or "containing" methanol.
(Added 1984) (Amended 1985, 1986, 1991, 1996, 2014, 2022, and 2023)

**<u>(c) For automotive gasoline or automotive gasoline-oxygenate blends an invoice based on a reading of a system that is equipped with an automatic or nonautomatic temperature compensator shall identify the delivered net volume by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in^3 at 60 °F).
(Added 20XX)</u>**

**<u>(d) For automotive gasoline-oxygenate blends an invoice based on the reading of a system that is equipped with an automatic or nonautomatic temperature compensator and a density correction system shall, in addition to the values required by (c) above, identify the net excess volume, that is the change in volume attributed to the change in density.
(Added 20XX)</u>**

Previous Status:
2026: Assigned to the LMD Density Correction Task Group– Language Changes

Original Justification:
Section IV., B. Method of Sale of Commodities, gasoline and gasoline oxygenate blends does not have a requirement for an invoice to include a statement that a calculated volume has been adjusted to a temperature of 15 °C (60 °F). The proposed language adds such a requirement.

Handbook 44 allows the use of automatic and nonautomatic temperature compensators to be used to calculate the net volume of the product at a reference temperature, but there is not a requirement in the Method of Sale to reflect that information on the invoice, though it is industry practice to do so. Additionally, due to the fact that the volume of gasoline and ethanol when blended is more than the volume of the two liquids measured separately, a proposal to modify Handbook 44 has been submitted to the NCWM to clarify that it is acceptable to use specific density-correction methods that allow for the accurate determination of volume growth that occurs when gasoline is blended with ethanol to make finished gasoline.

Automatic temperature compensators have been used for decades throughout the United States to calculate the net volume of the fuel being sold at terminals. Including a statement on the invoice to that effect identifies that the calculation has been done.

In 2019, the American Petroleum Institute published a Manual of Petroleum Measurement Standards (MPMS) Chapter 11.3.4, *Miscellaneous Hydrocarbon Properties - Denatured Ethanol and Gasoline Component Blend Densities and Volume Correction Factors,* that identifies multiple blending scenarios to calculate the excess volume that occurs when gasoline and ethanol are blended. Ch. 11.3.4 is a subchapter of the parent document Ch. 11, *Physical Properties Data*.

Ch. 11 is used throughout the petroleum industry to ensure the physical properties of the fuels are properly assessed to ensure that the fuel measured throughout the manufacturing and distribution system is done accurately and transparently using industry recognized standards. Indeed, measurements are taken at the refinery when fuel is moved into a pipeline, when the fuel is moved out of the pipeline into a terminal, and when the fuel is loaded from the terminal into a truck for delivery to a retail gasoline station. A recently released video by NIST states that every drop of fuel "passes through a meticulous system of measurements" from where the crude oil is extracted to the terminal to "prevent costly losses." [Source: Trust in Transactions: The Economic Power of Data – Moser April 9, 2025, https://www.nist.gov/pml/owm/weights-and-measures-economic-index.] The meticulous system of measurements often use API approved standards that are developed by the API Committee on Petroleum Measurement (COPM). Consequently, it is not a stretch to say that it is "firmly established trade custom and practice" to use the API MPMS standards to measure fuels throughout the industry worldwide. [see reference to HB 130, III. Uniform Laws, A. Weights and Measures Law, Section 16, Method of Sale (p. 29)]

The requirements for invoices in Handbook 130 – Section IV., Sec. B. Uniform Regulation for the Method of Sale of Commodities, Paragraph 2.20. Gasoline and Gasoline Oxygenate Blends – are minimal in scope providing only a reference to the U.S. Environmental Protection Agency (EPA) rules. These rules, summarized below require only the volume of the product being transferred to be identified.

> **EPA Rules at 40 C.F.R. § 1090.1110, PTD requirements for gasoline, gasoline additives, and gasoline regulated blendstocks**, paragraph "(a) ***General requirements.*** On each occasion when any person transfers custody or title of any gasoline, gasoline additive, or gasoline regulated blendstock, other than when fuel is sold or dispensed to the ultimate end user at a retail outlet or WPC facility, the transferor must provide the transferee PTDs that include the following information: (1) All applicable information required under § 1090.1100 and this section." [emphasis added]
>
> **Section "1090.1100 General Requirements"** states (a)(1)(iii) a PTD must include a set of information including (iii) **"The volume of the product being transferred."** [emphasis added]

This proposed change to HB 130 Method of Sale makes it clear that if the volume of a product is calculated and changed to reflect a change in volume, that the invoice reflects that change and cites the reference temperature.

Today multiple API standards (identified below) ensure accurate and transparent measurement. Further, sales agreements may state that where temperature compensation is used, those calculations incorporate the methods and procedures specified in API MPMS Chapter 11.[1]

- Ch. 8.1 Manual Sampling of Petroleum Products (ASTM D4057)
- Ch. 5.x Metering (5.1 General Considerations for Measurement by Meters, with specific chapters that address for displacement meters, turbine meters, Coriolis meters, ultrasonic flow meters, Fidelity and Security of Flow Measurement Pulsed-Data Transmissions Systems)
- Ch. 6.x – Metering Systems (6.1 Metering Assemblies- General Considerations, with specific chapters for - Truck and Rail Loading and Unloading Measurement Systems; - Pipeline and Marine Loading/Unloading Measurement Systems; and Lease Automatic Custody Transfer Systems)

[1] https://www.api.org/-/media/files/publications/2024-catalog/2024-publication-catalog.pdf.

- Ch. 4.x Proving Systems (Displacement Provers, Master-Meter Provers, Field Standard Test Measures, Methods of Calibration for Displacement and Volumetric Tank Provers, Part 1—Introduction to the Determination of the Volume of Displacement and Tank Provers)
- Ch. 7.4 Dynamic Temperature Measurement
- Ch. 11 Physical Properties Data (ASTM D1250, Adjunct)
    - Chapter 11.1 - Temperature and Pressure Volume Correction Factors for Generalized Crude Oils, Refined Products, and Lubricating Oils
    - Ch. 11.3.3 Miscellaneous Hydrocarbon Product Properties—Denatured Ethanol Density and Volume Correction Factors
    - Ch. 11.3.4 Miscellaneous Hydrocarbon Properties - Denatured Ethanol and Gasoline Component Blend Densities and Volume Correction Factors
    - Ch. 11.4.1 Density of Water and Water Volumetric Correction Factors for Water Calibration of Volumetric Provers
- Ch. 12.2 Calculation of Petroleum Quantities using Dynamic Measurement Methods and Volumetric Correction Factors
- Ch. 21.2 Electronic Liquid Measurement Using Positive Displacement and Turbine Meters

Why should we use and accept API standards? Handbook 130, Uniform Weights and Measures Law, Section 16, recognizes “firmly established trade custom and practice” that dictate how liquid fuels are sold. Specifically, it states,

Section 16. Method of Sale

Except as otherwise provided by the Director or by firmly established trade custom and practice,

(a) commodities in liquid form shall be sold by liquid measure or by weight; and

(b) commodities not in liquid form shall be sold by weight, by measure, or by count.

The method of sale shall provide accurate and adequate quantity information that permits the buyer to make price and quantity comparisons.

(Amended 1989)

In 2024, the U.S. customers consumed 137 billion gallons of gasoline (most of which was 10% ethanol) and 63 billion gallons of diesel fuel. Another 24 billion gallons of jet fuel were consumed in the U.S. At each stage of the process from producing the crude oil to selling the finished fuel to a retail gasoline station the product is measured. So, while there is over 224 billion gallons of finished product consumed in the U.S., those molecules have likely been measured many times over. These measurements are so important that the API Committee on Petroleum Measurement (COPM) meets twice a year, with over 700 people in attendance, at each meeting to review the standards that are used in the U.S. and around the world. By definition, the petroleum industry uses the API standards which are firmly established trade custom and practice.

Some have raised concerns that metering systems should not modify the volume of the product after it has gone through the custody meter. This concern appears to be premised on the belief that the gross volume **and** the net standard temperature compensated volume are measured. In practice, the only measured volume is the gross volume and that is measured by counting pulses from the meter in accordance with an API standard. The gross volume is then used by the custody transfer system or the automatic terminal management system to calculate the net volume using another set

of API standards including Chapters 5.x, 6x, 7.4, 11.1, 11.3.3, 11.3.4, 12.2, and 21.2. Please see above for the names of these standards.

Some have indicated that HB 130, IV. Uniform Regulations, A. Uniform Packaging and Labeling Regulation, Paragraphs 7.4.(b) and 7.5.(b) may already include a requirement.

7.4. SI Units: Mass, Measure.

(b) in units of liquid measure shall be in terms of the liter or milliliter, and shall express the volume at 20 °C, except in the case of petroleum products or distilled spirits, for which the declaration shall express the volume at 15.6 °C, and except also in the case of a commodity that is normally sold and consumed while frozen, for which the declaration shall express the volume at the frozen temperature, and except also in the case of malt beverages or a commodity that is normally sold in the refrigerated state, for which the declaration shall express the volume at 4 °C;

(Amended 1985)

7.5 U.S. Customary Units: Weight, Measure.

(b) in units of liquid measure shall be in terms of the United States gallon of 231 cubic inches or liquid quart, liquid pint, or fluid ounce subdivisions of the gallon and shall express the volume at 68 °F, except in the case of petroleum products or distilled spirits, for which the declaration shall express the volume at 60 °F, and except also in the case of a commodity that is normally sold and consumed while frozen, for which the declaration shall express the volume at the frozen temperature, and except also in the case of a commodity that is normally sold in the refrigerated state, for which the declaration shall express the volume at 40 °F, and except also in the case of malt beverages, for which the declaration shall express the volume at 39.1 °F;

(Amended 1985)

The submitter requested that this be a Voting Item in 2026.

Comments in Favor:

Regulatory:

- None

Industry:

- NCWM Interim 2026: The Submitter representing the American Petroleum Institute gave a presentation and explained that the purpose of the item is to show adjustments made to correct inaccuracy in volume when blending ethanol and gasoline and that he believes the item is fully developed. He recommended putting the item forward as Voting and others from industry agreed with the submitter and recommended a voting status.

Advisory:

- None

Comments Against:

Regulatory:

- NCWM Interim 2026: A weights and measures official from Illinois presented a handout opposing this item which is available on the NCWM site under supporting documents.

Industry:

- None

Advisory:

- NCWM Interim 2026: The Chair of FALS shared that there was both support and opposition to this item in the FALS meeting. For this reason, FALS took no position.

Neutral Comments:

Regulatory:

- NCWM Interim 2026: Numerous weights and measures officials spoke on the proposed item and agree this should have an Assigned or Developing status.

Industry:

- NCWM Interim 2026: The submitter after hearing comments from the floor agreed that this item should align between L&R and S&T.

Advisory:

- NCWM Interim 2026: The representative of NIST OWM stated that there should be harmonization between MOS and FLR and need to move the items before S&T and L&R together. They recommended assigning this item and the S&T item to a Work Group.

Item Development:

NCWM 2026 Annual: This item continues to be assigned to the LMD Density Correction Task Group as it is not yet fully developed.

Mr. Andrew Montanye, Work Group Chair, provided the Committee with the language shown above under Item Under Consideration requesting it to be included in the Committee's report for membership consideration.

Contact: Andrew Montayne
LMD Density Correction Task Group Chair
andrew.montanye@nebraska.gov

NCWM 2026 Interim: The Committee received comments in favor of this item from several industry representatives; they expressed the item was fully developed and recommended voting status. On the other hand, no weights and measures officials supported the item as written. A representative from Illinois recommended withdrawn, some others recommended further development, and many recommended it to be assigned to a Work Group for further review and development. weights and measures officials, Advisors from NIST OWM, FALS, and even the submitter concurred the proposed language in this item shall also be included in FLR 3.2.5. In addition, several weights and measures officials and NIST Advisors recommended this item to move forward contingent to Item LMD-26.1 from the L&R agenda moving forward as voting.

The Committee recommends this item be assigned to a Task Group for further vetting and developing. The Task Group will be charged with determining if the item is needed or not, and if yes, developing the final language and including it in FLR 3.2.5 to align both sections. In addition, the group will recommend if the items shall move forward as voting contingent to one another or not.

Regional Associations' Comments:

CWMA 2026 Interim Meeting:

Two representatives from industries gave prepared comments and were in favor of a voting status.

Three representative regulators stood in opposition.

It was recommended to place the word gallons before liters throughout the text.

The committee recommends this item remain assigned.

WWMA 2026 Annual Meeting:

WWMA L&R Committee member Mr. Russ Lewis recused himself from the open hearings and working sessions for this item.

During open hearings, Mr. Stephen Benjamin (Representing API) provided edits to the WWMA L&R Committee and reviewed them with the body. These edits originated from the LMD Density Correction Task Group but did not make it into the WWMA L&R Agenda.

Mr. Stephen Benjamin (Representing API) noted that the LMD Density Correction Task Group believes that the two L&R (MOS-26.3) and S&T (LMD-26.1) items are linked. He also noted that the following editorial changes were submitted but not reflected in the L&R Committee Agenda: L&R page 12, line 10 - struck "retail" and left "method of sale"; page 12, line 20 - changed "in2" to "in3"; page 12, line 29 – "Method of" was stricken, added "Retail". He also noted that the FLR section was added by the task group to reflect the MOS language. Mr. Benjamin recommended a VOTING status.

Mr. Matthew Sheehan (Chevron) believes this item is of value to terminals as well as retailers by providing transparency in invoicing. Mr. Sheehan recommended a VOTING status.

Mr. Steve Harrington (Oregon Weights & Measures) suggested the proposals from the L&R Agenda and the S&T Agenda should be linked. Mr. Harrington supported a VOTING status.

Mr. Kurt Floren (County of Los Angeles, California) posed a question for Mr. Benjamin as to why the word "retail" was struck in 2.20.1.? Mr. Benjamin explained that since compensation is only occurring at the wholesale transfer, and not retail, it is not a method of sale for retail transactions.

Mr. Russ Lewis (Marathon Petroleum) expressed that, like Chevron, Marathon is both a buyer and seller at wholesale and so this item impacts them on all levels. Mr. Lewis recommended a VOTING status.

Mr. Kevin Schnepp (California Division of Measurement Standards) Feels the task group has completed their work. Mr. Schnepp supported a VOTING status.

Mr. Mahesh Albuquerque (Colorado Division of Oil and Public Safety) stated that Colorado is leaning towards support. In Colorado, they do allow the option to do temperature compensation. This item places the focus on wholesale where it would be appropriately used. It does not conflict with Colorado statutes, but it does differ from what is allowed. Mr. Albuquerque supported a VOTING status.

Based on the comments heard during open hearings the WWMA L&R Committee recommends a VOTING status for this item with the edits presented during open hearings. There were also comments heard that item MOS-26.3 on the L&R Agenda and LMD-26.1 on the S&T Agenda are connected. The WWMA L&R Committee agrees with these comments and that these items should move forward together.

The edits presented during open hearings are included below:

2.20. Gasoline and Gasoline Oxygenate Blends

2.20.1. Method of ~~Retail~~ Sale. ~~— Type of Oxygenate must be Disclosed.~~ **All automotive gasoline or automotive gasoline oxygenate blends shall be sold, offered or exposed for sale in terms of liquid volume by the liter or the gallon.**

2.20.1.1. Wholesale.

(a) Gross - If sold, offered, or exposed for sale on an observed temperature basis it shall be by the liter (defined as 1 liter at the observed temperature) or the gallon (defined as 231 in^3 at the observed temperature).

(b) Temperature Compensation - If sold, offered, or exposed for sale on a temperature compensated basis it shall be by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in3 at 60 °F).

(Added 20XX)

(c) Density correction - An automotive gasoline oxygenate blend that is the result of combining separately measured gasoline or gasoline regulated blendstocks and ethanol, may be sold, offered, or exposed for sale on a density corrected basis by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in3 at 60 °F)

(Added 20XX)

(Amended 20XX)

2.20.~~1~~2. ~~Method of~~ Retail Sale, Type of Oxygenate must be Disclosed. ~~—~~ – All automotive gasoline or automotive gasoline-oxygenate blends kept, offered, or exposed for sale, or sold at retail containing at least 1.5 mass percent oxygen shall be identified as "with" or "containing" (or similar wording) the predominant oxygenate in the engine fuel. For example, the label may read "contains ethanol" or "with MTBE." The oxygenate contributing the largest mass percent oxygen to the blend shall be considered the predominant oxygenate. Where mixtures of only ethers are present, the retailer may post the predominant oxygenate followed by the phrase "or other ethers" or alternatively post the phrase "contains MTBE or other ethers." In addition, gasoline-methanol blend fuels containing more than 0.3 % by volume methanol shall be identified as "with" or "containing" methanol. This information shall be posted on the upper 50 % of the dispenser front panel in a position clear and conspicuous from the driver's position in a type at least 12.7 mm (1/2 in) in height, 1.5 mm (1/16 in) stroke (width of type).

(Amended 1996)

2.20.~~2~~3 Retail Sale, Product Transfer Document (PTD) Requirements. – The retailer shall be provided information that complies with PTD requirements for gasoline, gasoline additives, and gasoline regulated blendstocks **40 C.F.R. § 1090.1110,** at the time of delivery of the fuel, on product transfer documents such as an invoice, bill of lading, shipping paper, or other documentation. Additional declarations may be required for specific fuels **and/or measuring devices:**

(a) For fuels containing multiple oxygenates or oxygenates other than ethanol a declaration of the predominant oxygenate or combination of oxygenates present in concentrations sufficient to yield an oxygenate content of at least 1.0 % by volume in the fuel. Where mixtures of only ethers are present, the fuel supplier may identify either the predominant oxygenate in the fuel (i.e., the oxygenate contributing the largest mass percent oxygen) or alternatively, use the phrase "contains MTBE or other ethers."

(b) For fuels containing more than 0.3 % by volume methanol a declaration shall be identified as "with" or "containing" methanol.

(Added 1984) (Amended 1985, 1986, 1991, 1996, 2014, 2022, and 2023)

(c) For automotive gasoline or automotive gasoline-oxygenate blends an invoice based on a reading of a system that is equipped with an automatic or nonautomatic temperature compensator shall identify the delivered net volume by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in^3 at 60 °F).

(Added 20XX)

(d) For automotive gasoline-oxygenate blends an invoice based on the reading of a system that is equipped with an automatic or nonautomatic temperature compensator and a density correction system shall, in addition to the values required by (c) above, identify the net excess volume, that is the change in volume attributed to the change in density.

(Added 20XX)

NEWMA 2026 Interim Meeting:

A representative from the American Petroleum Institute is in support of the proposed changes to both Handbook 44 LMD-26.1 of the S&T Committee and to Handbook 130 MOS-26.3 of the L&R Committee. API stated that he was part of the NCWM Density Correction Task Group. The Task Group completed its charge in developing language for these items and returned them to the respective committees prior to the Annual Meeting. Furthermore, API supports the TG's decision that the two proposals are contingent upon one another and that the FLR regulations in section 3.2.5 would need to be updated to align with the MOS section. API also supports the inclusion of the most recent version of ASTM D4057 Standard Practice for Manual Sampling of Petroleum and Petroleum Products in LMD-26.1 UR sections 3.6.1.2. and 3.6.2.2, instead of API MPMS Chapter 8.1. (Note: Proposed language for MOS and FLR is posted under L&R Supporting Documents on the NEWMA website). The proposed changes to the regulations would occur as a wholesale business transaction at the petroleum terminal and do not include or impact retail transactions between seller and buyer. In previous testimony, API presented information and demonstrated that gasoline blended with 10% ethanol expands, about, 0.2%, depending on the density of the gasoline blendstock. The need for calculating volume expansion led to the development of the API standard Chapter 11.3.4 in the Manual of Petroleum Measurement Standards (MPMS).

API Chapter 11.3.4 is not a departure from accepted petroleum measurement practice, but rather the recognized methodology identified within the industry's principal net volume correction standard. API requests moving these items to Voting status.

A regulator from NJ stated This practice is already happening. Regardless of what happens with the S&T item, it should absolutely appear on the PDT. There is also a need to align the language in HB130 Fuels and Lubricants Regulation if this passes. Both should go in tandem. NJ recommends Voting status

A regulator from NY stated that: The wording on p. L&R 11, lines 30-31, "…1.5 mass percent oxygen…" should have been replaced with "…0.3% volume…" with the passage of 2023 B2:MOS-23.2. This change was added in the addendum sheet, was voted upon, and passed with no dissent that year.

A representative from NIST commented that this has been handled as an editorial change in the 2027 version of HB130

Further comments from NY: The proposed wording on p. L&R 12, line 29, Sec. 2.20.12 should be fixed to read Sec. 2.20.1.2

The proposed wording on p. L&R 12, line 42, Sec. 2.20.23 should be fixed to read Sec. 2.20.2**.**3.

For 2.20.2**.**3.(d) (L&R p.13, line 16) –The proposal in this section only makes density conversions for "automotive gasoline-oxygenate blends". He also questioned if the proposal is intended to make density conversions for any ethanol blended gasoline, and if so, what about density conversions for "automotive gasoline"? Giving the reasoning is based on the following:

- Neither term is defined in HB130 directly.
- However, Uniform Fuels and Automotive Lubricants Regulation, Sec.3.2- adopts 16 CFR Part 306. https://nvlpubs.nist.gov/nistpubs/hb/2025/NIST.HB.130-2026.pdf. Part 306.0 Definitions, Sub (i).1.
- And, "Automotive Fuels"-1. "Gasoline" – includes gasoline ethanol blends to 10%. https://www.ecfr.gov/current/title-16/chapter-I/subchapter-C/part-306.

NY proposes that L&R p.13, line 16 read: **(d) For automotive gasoline or automotive gasoline-oxygenate blends…** and recommends continued Assigned status.

The committee recommends an assigned status.

SWMA 2026 Annual Meeting:

Steve Benjamin representing API commented the following:
During the Annual NCWM meeting, the Density Correction Task Group returned language to both the S&T and L&R committees. However, that language did not make it to the L&R committee report and the regional agendas. For MOS

26.3, the language is correct, but some of the strike throughs did not appear in the agenda and I have highlighted them on the attached. Additionally, there are a couple of editorial changes regarding cubic inches.
Part of the task group's assignment was to decide if similar language should also appear in the Fuels and Lubricants section. They felt it should and the FLR document is what they provided. It is the same language as the MOS but numbered accordingly for the FLR section. Mr. Benjamin conveyed that these developments will appear on the NCWM publication 15 at interim.

Alison Wilkinson representing the state of Maryland, opposed the item and commented that this item lacks merit and recommends withdraw.

Bryan Just representing API commented the following:
Good afternoon, Madam Chair, my name is Bryan Just and I'm representing the American Petroleum Institute in support of the proposed changes to both Handbook 130 MOS-26.3 of the L&R Committee and to Handbook 44 LMD-26.1 of the S&T Committee.

I will send a copy of today's statement to the respective committees.

THIS PAST SUMMER, I WAS PART OF THE NCWM DENSITY CORRECTION TASK GROUP. THE TASK GROUP COMPLETED ITS CHARGE TO "OVERSEE FURTHER VETTING AND DEVELOPMENT OF ITEM MOS 26.3 OF THE LAWS AND REGULATIONS COMMITTEE AND ITEM LMD 26.1 OF THE SPECIFICATIONS AND TOLERANCES COMMITTEE, DETERMINE WHETHER BOTH ARE NEEDED, AND DECIDE WHETHER THEY SHOULD MOVE FORWARD CONTINGENT UPON EACH OTHER."

THE TASK GROUP MODIFIED THE PROPOSALS AND SENT LANGUAGE BACK TO THE STANDING COMMITTEES. THE TASK GROUP DECIDED THAT IF THE PROPOSALS MOVE FORWARD, THEY ARE CONTINGENT UPON ONE ANOTHER AND THAT THE FLR REGULATIONS WOULD NEED TO BE UPDATED TO ALIGN. THE TASK GROUP ENGAGED IN A DISCUSSION THAT UTILIZING ASTM D4057 AS A REFERENCE IN THE SECTIONS MAY BE BETTER SUITED THAN API MPMS CHAPTER 8.1.

API supports the Density Correction Task Group's decision that the two proposals are contingent upon one another and that the FLR regulations in section 3.2.5 need to be updated to align with the MOS section. API also supports the inclusion of the most recent version of ASTM D4057 Standard Practice for Manual Sampling of Petroleum and Petroleum Products in LMD-26.1 UR sections 3.6.1.2. and 3.6.2.2, instead of API MPMS Chapter 8.1.

FURTHERMORE, API AGREES WITH THE MODIFICATIONS TO THE LANGUAGE PUT FORTH BY THE TASK GROUP, INCLUDING THE UPDATES TO FLR-3.2.5 TO ALIGN WITH MOS-26.3, AND SUPPORTS THE PROPOSALS BEING SENT BACK TO THE RESPECTIVE COMMITTEES.

API would like to highlight the proposed changes to the regulations would occur as a wholesale business transaction at the petroleum terminal and do not include or impact retail transactions between seller and buyer.

This is Science
When blending ethanol with gasoline, the physical and chemical nature of the finished, blended product changes due to influences on molecular bonding. The addition of ethanol increases the vapor pressure of the fuel, changes the distillation profile, and increases octane of the finished blend as a result of these molecular influences.

Similarly, when ethanol is blended with gasoline, the density decreases while the volume increases because of molecular bonding changes. Therefore, an adjustment is necessary because the sum volume of the two individual

components is less than what is physically present in the blended volume. NIST OWM recognizes that when blending ethanol and petroleum products, due to the physical characteristics of these products, a chemical change occurs, which results in a greater volume of the blended product than the sum of the volume of the separate products when corrected to the reference temperature of 15 °C (60 °F).

In previous testimony, API presented information and demonstrated that gasoline blended with 10% ethanol expands, about, 0.2%, which is just an example of the typical volume expansion observed. The actual expansion is dependent on the density of the gasoline blendstock and can range from 0.1% to 0.4%. Furthermore, the range of expansion most often falls within maintenance tolerance of Table T.2. in Handbook 44, making it difficult to see in a prover.

Why a Blend-Specific Method Is Needed
The need for calculating volume expansion led to the development of the API standard Chapter 11.3.4 in the Manual of Petroleum Measurement Standards (MPMS).
The petroleum industry has long recognized that custody transfer methodologies may vary depending on the physical properties of the product and the commercial terms of the transaction. Quantities may be determined on a gross volume basis, a net standard volume basis, or by mass measurement. Net standard volumes are commonly calculated using the temperature and density correction procedures contained in API Manual of Petroleum Measurement Standards (MPMS) Chapter 11 and ASTM D1250, which directs users to MPMS Chapter 11.3.4 for procedures applicable to gasoline and denatured ethanol blend Volume Correction Factors (VCFs).

API Chapter 11.3.4 is not a departure from accepted petroleum measurement practice, but rather the recognized methodology identified within the industry's principal net volume correction standard.

When applied consistently and in accordance with the agreed commercial basis of sale, Chapter 11.3.4 supports accurate, transparent, and equitable custody transfer transactions and is consistent with the principles embodied in NIST Handbook 44.

API believes that LMD-26.1 of Handbook 44 and MOS-26.3/FLR-2.3 of Handbook 130 are fully developed and recommends a Voting status

Thank you.

Tory Brewer representing the state of West Virginia commented that the item is fully developed, echoed the comments mentioned on the floor by Steve Benjamin and recommended a voting status.

Russ Lewis representing Marathon Petroleum commented the following:
My name is Russ Lewis, representing Marathon Petroleum Company (MPC). MPC is both buyer and seller using this approach of calculating volume gain when blending gasoline and ethanol. We support it for equity and consistency on the wholesale level.

MPC supports this item for Voting status.

The item is fully developed. The NCWM task group completed its work which included the revisions of FLR-3.2.5, and we support the addition of the FLR language that goes along with MOS-26.3.

During the S&T open hearings, I gave testimony on the science behind the calculations, why the calculations are needed, the challenges to conducting validation at the rack, and how API MPMS 11.3.4 was developed by API and vetted by both API and ASTM for adoption. I will not restate those here but refer you to my earlier testimony.

SWMA L&R during the fall 2025 annual meeting recommended the item be moved forward as VOTING. Since then, the item has had additional language added by the national work group for FLR which was not present in the 2025 proposal. The item is now fully developed.

MPC supports this as voting item.

Bryan Just speaking on behalf of Matt Sheehan with Chevron U.S.A. Inc commented the following:
Chevron owns and operates facilities involved in refining, pipeline transmission, terminal distribution, and retail sales of gasoline and gasoline-ethanol blends. We participate on both sides of commercial transactions, selling and shipping gasoline-ethanol blends from our terminals, and purchasing and receiving gasoline-ethanol blends for our retail sites. We believe that adding language specifying that the use of temperature compensation and density correction be disclosed on product transfer documents and invoices will promote the fair trade of gasoline-ethanol blend products. At the January 2026 Interim Meeting of the National Conference on Weights and Measures, this item was assigned to the NCWM Density Correction Task Group. The task group completed its assessment of MOS-26-3 and reported its findings at the 2026 Annual Meeting.
Chevron believes that this item is fully developed and respectfully requests Voting status.

SWMA Laws and Regulations committee recommends this item to be given a voting status and recommends NCWM accept all editorial changes suggested by API that was made by the density correction task group.
See highlighted changes that have been suggested since the conference in July 2026:

2.20. Gasoline and Gasoline Oxygenate Blends

~~2.20.~~**1. Method of ~~Retail~~ Sale.** ~~— Type of Oxygenate must be Disclosed.~~ **All automotive gasoline or automotive gasoline oxygenate blends shall be sold, offered or exposed for sale in terms of liquid volume by the liter or the gallon.**

2.20.1.1. Wholesale.

(a) Gross - If sold, offered, or exposed for sale on an observed temperature basis it shall be by the liter (defined as 1 liter at the observed temperature) or the gallon (defined as 231 in^3 at the observed temperature).

(b) Temperature Compensation - If sold, offered, or exposed for sale on a temperature compensated basis it shall be by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in3 at 60 °F).

(Added 20XX)

(c) Density correction - An automotive gasoline oxygenate blend that is the result of combining separately measured gasoline or gasoline regulated blendstocks and ethanol, may be sold, offered, or exposed for sale on a density corrected basis by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in3 at 60 °F)

(Added 20XX)

(Amended 20XX)

2.20.~~1~~2. ~~Method of~~ Retail Sale, Type of Oxygenate must be Disclosed. — – All automotive gasoline or automotive gasoline-oxygenate blends kept, offered, or exposed for sale, or sold at retail containing at least 1.5 mass percent oxygen shall be identified as “with” or “containing” (or similar wording) the predominant oxygenate in the engine fuel. For example, the label may read “contains ethanol” or “with MTBE.” The oxygenate contributing the largest mass percent oxygen to the blend shall be considered the predominant oxygenate. Where mixtures of only ethers are present, the retailer may post the predominant oxygenate followed by the phrase “or other ethers” or alternatively post the phrase “contains MTBE or other ethers.” In addition, gasoline-methanol blend fuels containing more than 0.3 % by volume methanol shall be identified as “with” or “containing” methanol. This information shall be posted on the upper 50 %

of the dispenser front panel in a position clear and conspicuous from the driver's position in a type at least 12.7 mm (1/2 in) in height, 1.5 mm (1/16 in) stroke (width of type).

(Amended 1996)

2.20.~~2~~3 Retail Sale, Product Transfer Document (PTD) Requirements. – The retailer shall be provided information that complies with PTD requirements for gasoline, gasoline additives, and gasoline regulated blendstocks **40 C.F.R. § 1090.1110,** at the time of delivery of the fuel, on product transfer documents such as an invoice, bill of lading, shipping paper, or other documentation. Additional declarations may be required for specific fuels **and/or measuring devices:**

(a) For fuels containing multiple oxygenates or oxygenates other than ethanol a declaration of the predominant oxygenate or combination of oxygenates present in concentrations sufficient to yield an oxygenate content of at least 1.0 % by volume in the fuel. Where mixtures of only ethers are present, the fuel supplier may identify either the predominant oxygenate in the fuel (i.e., the oxygenate contributing the largest mass percent oxygen) or alternatively, use the phrase "contains MTBE or other ethers."

(b) For fuels containing more than 0.3 % by volume methanol a declaration shall be identified as "with" or "containing" methanol.

(Added 1984) (Amended 1985, 1986, 1991, 1996, 2014, 2022, and 2023)

(c) For automotive gasoline or automotive gasoline-oxygenate blends an invoice based on a reading of a system that is equipped with an automatic or nonautomatic temperature compensator shall identify the delivered net volume by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in^3 at 60 °F).

(Added 20XX)

(d) For automotive gasoline-oxygenate blends an invoice based on the reading of a system that is equipped with an automatic or nonautomatic temperature compensator and a density correction system shall, in addition to the values required by (c) above, identify the net excess volume, that is the change in volume attributed to the change in density.

(Added 20XX)

Additional changes suggested by API and agreed on by the SWMA Laws and Regulations committee are to add similar language to the Fuel and Lubricant Regulation to promote uniformity in the NIST 130.

See recommended editorial changes:

3.2. Automotive Gasoline and Automotive Gasoline Oxygenate Blends (Including Racing Gasoline)

…

3.2.4 – Method of Sale. – All automotive gasoline or automotive gasoline oxygenate blends shall be sold, offered or exposed for sale in terms of liquid volume by the liter or the gallon.

3.2.4.1. Wholesale. –

(a) Gross – If sold, offered, or exposed for sale on an observed temperature basis it shall be by the liter (defined as 1 liter at the observed temperature) or the gallon (defined as 231 in^3 at the observed temperature).

(b) Temperature Compensation – If sold, offered, or exposed for sale on a temperature compensated basis it shall be by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in^3 at 60 °F),

(c) Density Correction – An automotive gasoline oxygenate blend that is the result of combining separately

measured gasoline or gasoline regulated blendstocks and ethanol, may be sold, offered, or exposed for sale on a density corrected basis by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in^3 at 60 °F).

(Added 20XX)

(Amended 20XX)

3.2.4.5. – Method of Retail Sale,. - Type of Oxygenate must be Disclosed. – All automotive gasoline or automotive gasoline-oxygenate blends, or racing gasoline kept, offered, or exposed for sale, or sold at retail containing at least one volume percent oxygenate shall be identified as "with" or "containing" (or similar wording) the predominant oxygenate in the engine fuel. For example, the label may read "contains ethanol" or "with methyl tertiary-butyl ether (MTBE)." The oxygenate contributing the largest mass percent oxygen to the blend shall be considered the predominant oxygenate. Where mixtures of only ethers are present, the retailer may post the predominant oxygenate followed by the phrase "or other ethers" or alternatively post the phrase "contains MTBE or other ethers." In addition, gasoline-methanol blend fuels containing more than 0.3% by volume ethanol shall be identified as "with" or "containing" methanol. This information shall be posted on the upper 50% of the dispenser front panel in a position clear and conspicuous from the driver's position in a type at least 12.7 mm (1/2 in) in height, 1.5mm (1/16 in) stroke (width of type).

(Amended 1996**, 2018, and 20XX**)

3.2.**5.6. Retail Sale, Product Transfer Document (PTD) Requirements**. – The retailer shall be provided information that complies with the requirements for gasoline, gasoline additives, and gasoline regulated blendstocks, 40. C.F.R. § 1090.1110 when the fuel contains ethanol. Additional declarations may be required for specific fuels

(a) For fuels containing multiple oxygenates other than ethanol, **information** a declaration of the predominant oxygenate or combination of oxygenates present in concentrations sufficient to yield an oxygenate content of at least 1.0 % by volume in the fuel. Where mixtures of only ethers are present, the fuel supplier may identify either the predominant oxygenate in the fuel (i.e. the oxygenate contributing the largest mass percent oxygen) or alternatively, use the phrase "contains MTBE or other ethers."

(Added 2014) (Amended 2022**, 2023, and 20XX**)

(b) For fuels containing more than 0.3% by volume methanol a declaration shall be identified as "with" or "containing" methanol.

(Added 2014) (Amended 2018 and 2023)

(c) For automotive gasoline or automotive gasoline-oxygenate blends an invoice based on a reading of a system that is equipped with an automatic or nonautomatic temperature compensator shall identify the delivered net volume by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in^3 at 60 °F).

(Added 20XX)

(d) For automotive gasoline-oxygenate blends an invoice based on the reading of a system that is equipped with an automatic or nonautomatic temperature compensator and a density correction system shall, in addition to the values required by (c) above, identify the net excess volume, that is the change in volume attributed to the change in density.

(Added 20XX)

(Amended 1996, 2014, 2018, 2022, 2023, and 20XX)

3.2.6.7. EPA Labeling Requirements. – Retailers and wholesale purchaser-consumers of gasoline shall comply with the EPA pump labeling requirements for gasoline containing greater than 10 volume percent (v%) up to 15 volume

percent (v%) ethanol (E15) under E15 labeling provisions, **40 C.F.R. § 1090.1510**. (For additional information, refer to section 3.8.2. FTC Labeling Requirements.)

(Added 2012) (Amended 2018 and 2022)

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

MOS-27.4 2.33.2. Method of Sale.

Source:
PlugInSites.org

Purpose:
Section 2.33.2 as currently written permits fees for "other services" without defining what qualifies as a service or requiring that all costs be reflected in the per-unit price. This has enabled operators to set the per-kilowatt-hour price at or near $0.00 while recovering the bulk of the fueling cost through time-based or fixed fees assessed during the charging session, leaving consumers with no meaningful basis for price comparison at the point of sale. This proposal limits permissible ancillary fees to those genuinely independent of energy delivery, requiring full cost disclosure in the per-unit price, and clarifying that a time-based fee assessed after active energy delivery to the vehicle has ceased is permissible as a distinct post-session service, triggered by the physical cessation of electricity flow to the vehicle.

Item under Consideration:
Amend NIST Handbook 130 Uniform Regulation for the Method of Sale of Commodities as follows:

> **2.33.2. Method of Sale. -** All electrical energy kept, offered, or exposed for sale and sold at retail as a vehicle fuel shall be in units in terms of the kilowatt-hour (kWh). ~~**In addition to the fee assessed for the quantity of electrical energy sold, fees may be assessed for other services; such fees may be based on time measurement and/or a fixed fee.**~~ **All costs to the consumer, including taxes, must be included in the cost per kilowatt-hour of electrical energy sold. A fee based on time may be assessed only after active energy delivery to the vehicle has ceased and the vehicle remains connected to the supply equipment. Such fee shall be calculated based on the duration of continued connection following cessation of energy delivery and shall be itemized separately on the customer's receipt.**

Previous Status:
2027: New Proposal

Original Justification:
Florida Administrative Code Rule 5J-28.007, promulgated following Florida SB 1084 (2023), has implemented substantively identical method-of-sale requirements at the state level. The Florida rule provides a regulatory model that has been in effect and subject to enforcement in a major electric vehicle market. The proposed language draws directly on the Florida rule while incorporating a clarification regarding post-fueling connection fees. Specifically, the amendment anchors the permissible post-fueling fee to the physical cessation of active energy delivery rather than to a network-defined session boundary, ensuring that the consumer protection intent of the provision cannot be circumvented through session management practices.

Some operators and industry groups may argue that time-based and session fees reflect legitimate business costs beyond energy delivery, such as network connectivity, payment processing, and station maintenance, and that requiring all costs to be reflected in the per-unit price would force a pricing structure that does not accurately represent the economics of operating a charging network.

The submitter requests that this be a Voting Item in 2027.

Comments in Favor:

Regulatory:
-

Industry:
-

Advisory:
-

Comments Against:

Regulatory:
-

Industry:
-

Advisory:
-

Neutral Comments:

Regulatory:
-

Industry:
-

Advisory:
-

Item Development:
New Proposal in 2027

Regional Associations' Comments:
New Proposal in 2027

CWMA 2026 Interim Meeting:

No comments were received.

The committee recommends a voting status.

WWMA 2026 Annual Meeting:

Ms. Mal Skowron (Tesla) commented that the item is unnecessary and may lead to unintended consequences, such as restricting the use of time-based fees. This would affect operators of EV charging sites by preventing them from applying time-based charges when charging rates slow, which could increase wait times and negatively impact end users. She also noted that the requirement may conflict with state jurisdictional tax laws. She recommended a WITHDRAWN status.

Mr. Steve Harrington (Oregon Weights & Measures) commented that the item would require disclosing all costs on the receipt and would be difficult to achieve and regulate. He also mentioned the item would further restrict the ability to charge based on time after charging is complete. He recommended a DEVELOPING status.

Mr. Scott Wagner (Colorado Division of Oil and Public Safety) commented the item restricts the method of sale, charging on the basis of time, which is a common method used by industry. He believes the item lacks merit, fails to meet transparency standards and may be more appropriate in Handbook 44. He recommended a WITHDRAWN status.

Mr. John Sorfleet (Santa Clara County, California) stated he generally supports the intend of the item by requiring charges based only on the kilowatt hour which promotes uniformity. He further commented that the item as written may be impractical and requires further development. He recommended a DEVELOPING status.

Mr. Kevin Schnepp (California Division of Measurement Standards) stated the intention of this item provides equity with other petroleum type fuel stations by including other associated fees and taxes. He expressed concerns that the item as written is too prescriptive and lacks clarity. He recommended a DEVELOPING status.

Mr. Kurt Floren (County of Los Angeles, California) agreed with Mr. Schnepp noting that other petroleum type fuel stations include taxes and fees and questioned if that was the purpose behind the item. He would like more clarification on the item. He recommended a DEVELOPING status.

Ms. Mal Skowron (Tesla) added clarification on previous comments. She stated the item does not prohibit time-based fees however; they would only be allowed after the vehicle is fully charged. She added, once the vehicle charge exceeds 80% of charge capacity, charging of the vehicle slows down dramatically. The inability to charge for time would significantly impact throughput at EV charging locations, creating a negative impact on customers who have to wait longer.

Mr. Steve Harrington (Oregon Weights & Measures) further commented that time-based fees would be allowable after the vehicle has been fully charged. He maintains the recommendation of DEVELOPING status.

Based on the comments received during the open hearings, the WWMA L&R Committee recommends assigning this item a DEVELOPING status. The committee further recommends that the submitter refine the item's language to clearly state its purpose and address the concerns raised, including potential impacts on time-based charging, customer throughput, and the extent to which listing applicable fees and taxes on receipts may affect various jurisdictions.

<u>NEWMA 2026 Interim Meeting:</u>

A representative from ChargePoint opposes this item. This proposal is a large change to the current language in Handbook 44, which currently provides flexibility for EV charging providers to develop their consumer pricing based on the unique operational conditions. ChargePoint believes this proposal goes beyond defining a method of sale to dictating underlying business models of EV charging operators. For example, a common practice today is to begin changing a time-based fee when a vehicle reaches a charging state of 80%. This proposal would prohibit this approach. Additionally, EV charging is a fundamentally different product from other fueling applications where a charging session is on a L2 charger.

The language as proposed also appears to prohibit the ability to tax time-based fees as it states "all cost to the consumer, including taxes must be included in the cost".

Finally, no other fuel in HB 130 has this requirement. The Method of Sale provisions consistently define the unit of sale and leave pricing structure and tax treatment to the market and other regulatory authorities. MOS 27.4 would single out EV charging for a restriction that applies to no other fuel. ChargePoint proposes Assigning this to the EV Task Group, if NEWMA believes these changes are necessary.

A regulator from NJ stated this would require that all taxes, fees, time fees, etc. be included in the kilowatt-hour unit price. NJ opposes this item, and recommends Withdrawn status.

A regulator NY agrees with NJ and ChargePoint, and agrees with Withdrawn status.

A Regulator from Vermont supports this language as it would provide the consumer with more straightforward pricing information for price comparison between competing EV Chargers.

The committee recommends this item be withdrawn.

SWMA 2026 Annual Meeting:

Submitter recommends voting status.

Cuong Nguyen representing Tesla recommends a withdrawn and states this change to would be hard to apply across state lines due to different tax rates.

Alison Wilkinson representing the state of Maryland recommends an editorial change to remove the statement "including taxes" from the item. Maryland disagrees with the additional fees that are being issued to consumers for reasons outside of the underlining purpose of the device which is to charge for energy. Other fees include time based or activation fees. Due to irregular network activity these additional charges have been found overcharging consumers for services not received. Maryland supports this item and recommends voting status with the editorial changes.

Brian Terry representing the state of Arkansas supports this item with the recommended editorial changes suggested by Maryland and recommends a voting status.

Mauricio Mejia representing the state of Florida supports this item due to statues within his jurisdiction that prohibit time-based fees. Recommend informational status.

Robert Huff representing the state of Delaware supports the item with the recommended editorial changes suggested by Maryland and recommends a voting status.

SWMA Laws and Regulations committee recommends this item to be given voting status and recommend the following editorial changes be made to the item. That the words "included taxes" be removed from line 18 in the agenda.

> **2.33.2. Method of Sale. -** All electrical energy kept, offered, or exposed for sale and sold at retail as a vehicle fuel shall be in units in terms of the kilowatt-hour (kWh). ~~**In addition to the fee assessed for the quantity of electrical energy sold, fees may be assessed for other services; such fees may be based on time measurement and/or a fixed fee.**~~ **All costs to the consumer, ~~including taxes~~, must be included in the cost per kilowatt-hour of electrical energy sold. A fee based on time may be assessed only after active energy delivery to the vehicle has ceased and the vehicle remains connected to the supply equipment. Such fee shall be calculated based on the duration of continued connection following cessation of energy delivery and shall be itemized separately on the customer's receipt.**

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

RSA – UNIFORM REGULATION FOR THE VOLUNTARY REGISTRATION OF SERVICEPERSONS AND SERVICE AGENCIES FOR COMMERCIAL WEIGHING AND MEASURING DEVICES

RSA-27.1 Section 4. Voluntary Registration

Source:
Delaware

Purpose:
Delete duplicate entry.

Item under Consideration:
Amend NIST Handbook 130 Uniform Regulation for the Voluntary Registration of Service Persons and Service Agencies as follows:

Section 4. Voluntary Registration

An individual or agency qualified by training, experience, and/or certificate(s) granted by a recognized standards development organization or other jurisdictional authority approved by the Director; may apply for registration to service weighing devices or measuring devices on an application form supplied by the Director. Said form, duly signed and witnessed, shall include acknowledgement by the applicant that the individual or agency is fully qualified to install, service, repair, or recondition whatever devices for the service of which competence is being registered; has in possession or available for use, and will use, all necessary testing equipment and standards; and has full knowledge of all appropriate weights and measures laws, orders, rules, and regulations. Each applicant, whether an individual or an agency, also shall submit an appropriate certificate(s), license(s) evidence, and/or references as to their qualifications to the Director. The certificate(s) shall apply to the types of weighing devices and measuring devices inspected and tested by the individual or agency. Device types without available certificate(s) available from a recognized standards development organization or other jurisdictional authority approved by the Director may be exempted from the certificate requirement. ~~**Application for registration shall be voluntary, but the Director is authorized to reject or limit any application.**~~ Application for registration shall be voluntary, but the Director is authorized to reject or limit any application. (Added 1966) (Amended 1984 and 2024)

Previous Status:
2027: New Proposal

Original Justification:
This will eliminate a duplicate entry.

The submitter requests that this be a Voting Item in 2027.

Comments in Favor:

Regulatory:
-

Industry:
-

Advisory:
-

Comments Against:

Regulatory:
-

Industry:
-

Advisory:
-

Neutral Comments:

Regulatory:
•

Industry:
•

Advisory:
•

Item Development:
New Proposal in 2027

Regional Associations' Comments:
New Proposal in 2027

CWMA 2026 Interim Meeting:

One regulator voiced he was in favor of this proposal only after deleting line 9 because it is duplicate wording.

The committee recommends a voting status.

WWMA 2026 Annual Meeting:

Mr. John McGuire (NIST OWM) stated that the item includes duplicative language which should be deleted. He suggested that NIST OWM could handle this editorially.

Mr. Steve Harrington (Oregon Weights & Measures) agreed with Mr. McGuire that the item should be handled editorially.

Mr. Mahesh Albuquerque (Colorado Division of Oil and Public Safety – Representing Aaron Yanker, Colorado Department of Agriculture Weights & Measures) agreed with Mr. McGuire and is supportive of the item so long as the language "…the director is authorized to reject or limit any application" remains in the paragraph.

Mr. Kevin Schnepp (California Division of Measurement Standards) agreed that the language is duplicative and is in support of the suggestion from Aaron Yanker to be considered by NIST OWM. If this cannot be accomplished editorially, the item should move forward with a VOTING status.

Based on the comments heard during open hearings the WWMA L&R Committee recommends a VOTING status for this item. The WWMA L&R Committee further recommends that the NCWM L&R Committee consider working with NIST OWM to determine whether they can resolve this issue editorially.

NEWMA 2026 Interim Meeting:

No comments were heard from the floor.

The committee gives no recommendation.

SWMA 2026 Annual Meeting:

Submitter recommends voting.

Brian Terry representing the state of Arkansas supports this item and recommends voting status.

Maricio Mejia representing the state of Florida supports this item and recommends voting status.

SWMA Laws and Regulations committee recommends this item to be given voting status.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

RSA-27.2 Section 8. Placed in Service Report

Source:
Delaware

Purpose:
Allow for electronic notifications (e.g., fax, email).

Item under Consideration:
Amend NIST Handbook 130 Uniform Regulation for the Voluntary Registration of Service Persons and Service Agencies as follows:

Section 8. Placed in Service Report

This publication is available free of charge from https://doi.org/10.6028/NIST.HB.130-2026 The Director ~~**shall**~~ **may** furnish each registered serviceperson and registered service agency with a supply of report forms to be known as "Placed in Service Reports." Such a form ~~**shall be executed in triplicate,**~~ shall include the **location and details of the work performed**, assigned registration number, and shall be signed by a registered serviceperson or by a serviceperson representing a registered agency for each rejected device restored to service and for each newly installed device placed in service. Within 24 hours after a device is restored to service or placed in service, the original of the properly executed Placed in Service Report, together with any official rejection tag removed from the device, shall be forwarded to the Director at _____(address) or electronically. ~~The~~ ~~**duplicate**~~ **A copy** of the report shall be handed to the owner or operator of the device, and **a** ~~**the triplicate**~~ copy of the report shall be retained by the Registered Serviceperson or Registered Service Agency. (Added 1966) (Amended 2005)

Previous Status:
2027: New Proposal

Original Justification:
Updating the terminology by removing the words "triplicate" and "duplicate" will allow for electronic notifications. Changing "shall" to "may" allows states to accept service companies' Placed in Service Reports or to continue to provide their own.

The submitter requests that this be a Voting Item in 2027.

Comments in Favor:

Regulatory:
-

Industry:
-

Advisory:
-

Comments Against:

Regulatory:
-

Industry:
-

Advisory:
•

Neutral Comments:

Regulatory:
•

Industry:
•

Advisory:
•

Item Development:
New Proposal in 2027

Regional Associations' Comments:
New Proposal in 2027

CWMA 2026 Interim Meeting:

Two regulators voiced they were in favor of this proposal. One regulator wants to delete the first sentence of line 17 and added this should begin with The Director….

The committee recommends a voting status.

WWMA 2026 Annual Meeting:

Mr. John McGuire (NIST OWM) stated that the opening sentence referencing "This publication is available free of charge from https://doi.org/10.6028/NIST.HB.130-2026" should not be in the item and recommended striking that phrase.

Mr. Steve Harrington (Oregon Weights & Measures) supported removing references to duplicate and triplicate copies on the forms and recommended a VOTING status.

Mr. Scott Wagner (Colorado Division of Oil and Public Safety) stated the purpose of the item is to allow for electronic notifications, recommended an editorial change on line 25 to replace "shall be handed to" with "provided for" or "made available to", and recommended a VOTING status.

Mr. John Sorfleet (Santa Clara County, California) echoed Mr. Wagner's comments, noting that "handed to" implies a physical copy, and recommended changing the language to allow for electronic reports.

Mr. Mahesh Albuquerque (Colorado Division of Oil and Public Safety – Representing Aaron Yanker, Colorado Department of Agriculture Weights & Measures) expressed agreement with removing the term "triplicate" and resolving duplication in the text, and supported the line 25 language change regarding "handed" as stated earlier.

Mr. Kevin Schnepp (California Division of Measurement Standards) supported the intent of the item with the suggested editorial edits, noting that the phrase "details of the work performed" seems vague, and suggested a revision to "shall include at a minimum..." for clarity, and recommended a VOTING status.

Based on the comments heard during open hearings the WWMA L&R Committee made the edits suggested by the body and recommends a VOTING status for this item as edited below with the WWMA L&R Committee changes noted in red font and double underlined:

Section 8. Placed in Service Report

~~**This publication is available free of charge from https://doi.org/10.6028/NIST.HB.130-2026**~~ The Director ~~**shall**~~ **may** furnish each registered serviceperson and registered service agency with a supply of report forms to be known as "Placed in Service Reports." Such a form ~~**shall be executed in triplicate,**~~ shall include the **location and details of the**

work performed as required by the Director, assigned registration number, and shall be signed by a registered serviceperson or by a serviceperson representing a registered agency for each rejected device restored to service and for each newly installed device placed in service. Within 24 hours after a device is restored to service or placed in service, the original of the properly executed Placed in Service Report, together with any official rejection tag removed from the device, shall be forwarded to the Director at _____(address) or electronically. ~~The~~ ~~duplicate~~ **A copy** of the report shall be ~~handed~~ **provided** to the owner or operator of the device, and **a** ~~the triplicate~~ copy of the report shall be retained by the Registered Serviceperson or Registered Service Agency. (Added 1966) (Amended 2005 **and 20XX**)

NEWMA 2026 Interim Meeting:
A regulator from NY stated that changing the term from "shall" to "may", as currently written could be misinterpreted, and does not read as the proposal intends - that the RSA can use their own form. Further, the removal of the term "triplicate copies" does not limit a person to paper copies. The three copies of the forms are designated as to whom receives each copy, NY recommends Withdrawal

The committee recommends this item be withdrawn.

SWMA 2026 Annual Meeting:

Submitter recommends voting status.

Alison Wilkinson representing the state of Maryland supports this item and recommends voting status.

Brian Terry representing the state of Arkansas supports this item and recommends voting status.

SWMA Laws and Regulations committee recommends this item to be given voting status.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

FLR – UNIFORM FUELS AND AUTOMOTIVE LUBRICANTS REGULATION

FLR-27.3 3.2. Automotive Gasoline and Automotive Gasoline Oxygenate Blends (Including Racing Gasoline)

Source:
NCWM LMD Density Correction Task Group

Purpose:
Align the Uniform Fuel and Automotive Lubricants Regulation with a potential change to the Uniform Regulation for the Method of Sale of Commodities in the instance the API proposals for LMD-26.1 and MOS-26.3

Item under Consideration:
Amend the NIST Handbook 130 Uniform Fuels and Automotive Lubricants Regulation as follows:

3.2. Automotive Gasoline and Automotive Gasoline Oxygenate Blends (Including Racing Gasoline)

…

3.2.4 – Method of Sale. – All automotive gasoline or automotive gasoline oxygenate blends shall be sold, offered or exposed for sale in terms of liquid volume by the liter or the gallon.

3.2.4.1. Wholesale. –

(a) Gross – If sold, offered, or exposed for sale on an observed temperature basis it shall be by the liter (defined as 1 liter at the observed temperature) or the gallon (defined as 231 in^3 at the observed temperature).

(b) Temperature Compensation – If sold, offered, or exposed for sale on a temperature compensated basis it shall be by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in^3 at 60 °F),

(c) Density Correction – An automotive gasoline oxygenate blend that is the result of combining separately measured gasoline or gasoline regulated blendstocks and ethanol, may be sold, offered, or exposed for sale on a density corrected basis by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in^3 at 60 °F).

(Added 20XX)

(Amended 20XX)

3.2.4.5. – ~~Method of~~ Retail Sale,~~.~~ Type of Oxygenate must be Disclosed. – All automotive gasoline or automotive gasoline-oxygenate blends, or racing gasoline kept, offered, or exposed for sale, or sold at retail containing at least one volume percent oxygenate shall be identified as "with" or "containing" (or similar wording) the predominant oxygenate in the engine fuel. For example, the label may read "contains ethanol" or "with methyl tertiary-butyl ether (MTBE)." The oxygenate contributing the largest mass percent oxygen to the blend shall be considered the predominant oxygenate. Where mixtures of only ethers are present, the retailer may post the predominant oxygenate followed by the phrase "or other ethers" or alternatively post the phrase "contains MTBE or other ethers." In addition, gasoline-methanol blend fuels containing more than 0.3% by volume ethanol shall be identified as "with" or "containing" methanol. This information shall be posted on the upper 50% of the dispenser front panel in a position clear and conspicuous from the driver's position in a type at least 12.7 mm (1/2 in) in height, 1.5mm (1/16 in) stroke (width of type).

(Amended 1996**, 2018, and 20XX**)

3.2.~~5.~~6. **Retail Sale, Product Transfer Document (PTD) Requirements**. – The retailer shall be provided information that complies with the requirements for gasoline, gasoline additives, and gasoline regulated blendstocks, 40. C.F.R. § 1090.1110 when the fuel contains ethanol. Additional declarations may be required for specific fuels

(a) For fuels containing multiple oxygenates other than ethanol, ~~information~~ a declaration of the predominant oxygenate or combination of oxygenates present in concentrations sufficient to yield an oxygenate content of at least 1.0 % by volume in the fuel. Where mixtures of only ethers are present, the fuel supplier may identify either the predominant oxygenate in the fuel (i.e. the oxygenate contributing the largest mass percent oxygen) or alternatively, use the phrase "contains MTBE or other ethers."

(Added 2014) (Amended 2022**, 2023, and 20XX**)

(b) For fuels containing more than 0.3% by volume methanol a declaration shall be identified as "with" or "containing" methanol.

(Added 2014) (Amended 2018 and 2023)

(c) For automotive gasoline or automotive gasoline-oxygenate blends an invoice based on a reading of a system that is equipped with an automatic or nonautomatic temperature compensator shall identify the delivered net volume by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in^3 at 60 °F).

(Added 20XX)

(d) For automotive gasoline-oxygenate blends an invoice based on the reading of a system that is equipped with an automatic or nonautomatic temperature compensator and a density

correction system shall, in addition to the values required by (c) above, identify the net excess volume, that is the change in volume attributed to the change in density.

(Added 20XX)

(Amended 1996, 2014, 2018, 2022, 2023, and 20XX)

3.2.~~6.~~7. EPA Labeling Requirements. – Retailers and wholesale purchaser-consumers of gasoline shall comply with the EPA pump labeling requirements for gasoline containing greater than 10 volume percent (v%) up to 15 volume percent (v%) ethanol (E15) under E15 labeling provisions, **40 C.F.R. § 1090.1510**. (For additional information, refer to section 3.8.2. FTC Labeling Requirements.)

(Added 2012) (Amended 2018 and 2022)
(Amended 2018 and 2022)

Previous Status:
2026: New Proposal

Original Justification:
The LMD Density Correction Task Group was charged with aligning the FLR code with a potential change to the MOS code in the instance the API proposal's for LMD 26.1 and MOS 26.3.

Some may oppose setting strict methods of sale for Automotive gasoline and gasoline and oxygenated blends.

Comments in Favor:

Regulatory:
•

Industry:
•

Advisory:
•

Comments Against:

Regulatory:
•

Industry:
•

Advisory:
•

Neutral Comments:

Regulatory:
•

Industry:
•

Advisory:
•

Item Development:
New Proposal 2027

Regional Associations' Comments:
New Proposal 2027

CWMA 2026 Interim Meeting:

Not applicable.

WWMA 2026 Annual Meeting:

Not applicable.

NEWMA 2026 Interim Meeting:

Not applicable.

SWMA 2026 Annual Meeting:

Not applicable.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

FLR-26.1 A 7.2. Reproducibility Limits

Source:
Colorado Division of Oil and Public Safety

Purpose:
This proposal aims to clarify section 7.2.5. – Enforcement Action in the Uniform Fuels Regulation to address misleading and inadequate language from 2008.

Item under Consideration:
Amend NIST Handbook 130 Uniform Fuels and Automotive Lubricants Regulation as follows:

7.2. Reproducibility Limits.

7.2.1. AKI Limits. – When determining the antiknock index (AKI) acceptance or rejection of a gasoline sample, the AKI reproducibility limits as outlined in the latest version of ASTM D4814, "Standard Specification for Automotive Spark-Ignition Engine Fuel," Appendix X1 shall be acknowledged for enforcement purposes.

7.2.2. Reproducibility. ~~**– The reproducibility limits of the standard test method used for each test performed shall be acknowledged for enforcement purposes, except as indicated in Section 2.2.1. Premium Diesel Fuel and Section 7.2.1. AKI Limits. No allowance shall be made for the precision of the test methods for aviation gasoline or aviation turbine fuels.**~~

(a) The reproducibility limits of the standard test method used for each test performed shall be acknowledged for enforcement purposes, except as indicated in Section 7.2.1. AKI Limits. No allowance shall be made for the precision of the test methods for aviation gasoline or aviation turbine fuels. (Amended 20xx)

(b) Notwithstanding the provisions in 7.2.2. (a), the Director may initiate enforcement action when several independent test results of the same product, sampled from the same source location on separate occasions following new product deliveries, are greater than the maximum or less than the minimum specification limits, posted values, certified values, or registered values.

7.2.3. SAE Viscosity Grades for Engine Oils. – With the exception of the low-temperature cranking viscosity, all values required to define SAE Viscosity Grades, as defined in the latest version of SAE J300, "Engine Oil Viscosity Classification", are critical specifications as defined by the latest version of ASTM D3244, "Standard Practice for Utilization of Test Data to Determine Conformance with Specifications". (Added 2008) (Amended 2021)

7.2.4. Dispute Resolution. – In the event of a dispute over a reported test value, the guidelines presented in the latest version of ASTM D3244, "Standard Practice for Utilization of Test Data to Determine Conformance with Specifications," shall be used to determine the acceptance or rejection of the sample.

~~**7.2.5. Additional Enforcement Action. The Director may initiate enforcement action in the event that, based upon a statistically significant number of samples, the average test result for products sampled from the same source location is greater than the legal maximum or less than the legal minimum limits (specification value), posted values, certified values, or registered values.**~~

~~**(Added 2008) (Amended 2018)**~~

Previous Status:

2026: Assigned to the Fuels and Lubricants Subcommittee– Language Changes

Original Justification:

Nationwide, all state jurisdictions that are adopting the fuel quality regulations of NIST HB 130 acknowledge reproducibility* limits of

analytical test methods for enforcement action purposes.

Though these reproducibility limits (R) are acknowledged by these state regulatory agencies authorized to assure fuel quality, the objective and intent for all parties involved is to meet legal requirements, not to exploit the space given between a legal limit and the (acknowledged) reproducibility limit.

With the intent to avoid the exploitation of such R values by any regulated party, section 7.2.5. – Additional Enforcement Action was originally published in 2008 and amended in 2018.

The applicable section currently reads:

"7.2.5. Additional Enforcement Action. The Director may initiate enforcement action in the event that, based upon a statistically significant number of samples, the average test result for

products sampled from the same source location is greater than the legal maximum or less than the legal minimum limits (specification value), posted value, certified values, or registered values."

However, the current language insufficiently articulates its intent, and obscures proper approach and conditional parameters. More specifically, the current Enforcement Action language does not articulate that its intent is to address situations where fuel quality characteristics are within reproducibility limits but often outside legal requirements. In addition, the language "the average test result for products sampled from the same source location" can mislead a regulatory agency to average a number of test results obtained from the same sample specimen**. However, "the average test result" shall be calculated from a number of independent test results obtained from independent sample specimens, each of which represent the same product, from the same location, sampled at different times. Finally, the word "additional" in the title "Additional Enforcement Action" implies that other enforcement action(s) already took place.

However, that won't be the case because in most scenarios no enforcement actions will have been taken after each individual sampling and testing event, because the regulating agency acknowledged reproducibility limits at the conclusion of each individual sampling and testing event though the single test result exceeded legal limits.

When these discrepancies were first brought to the Fuels and Lubricants Subcommittee's attention during the NCWM Interim Meeting in January of 2025, a focus group*** comprising of 13 diverse stakeholders from fuel industry and regulatory agencies was established. After email correspondence, two virtual meetings and an in-person meeting during the Annual NCWM Meeting in July of 2025, consensus on the following language was reached within the diverse focus group:

"To avoid the exploitation of a test method's reproducibility limits by any regulated party, the Director may initiate enforcement action when several independent test results, of the same product sampled from the same source location at different times, are exceeding legal limits (such as specification values, posted values, certified values, or registered values). (Added 202X)."

Consensus on the title and position within section 7. Test Methods and Reproducibility Limits were also reached by the focus group, and are as follows:

7.2.2.1. Enforcement Action

This title resolves the currently inaccurate title, and the sub-placement of this Enforcement Action regulation as 7.2.2.1 links it directly to its intended scope:

Section 7.2.2. Reproducibility.

In addition, Section 7.2.4. Dispute Resolution represents a process possibly necessary AFTER enforcement actions were initiated by a regulating agency. Hence, dispute resolutions should conclude Section 7. Test Methods and Reproducibility Limits, instead of end with 7.2.5 Additional Enforcement Action as currently published in HB 130.

* Reproducibility (R) of a standard test method is most often defined by the standard organization ASTM as the variability between single analytical test results obtained in different laboratories, each of which has applied the test method to test specimens taken from a single quantity of homogenous material.

** A sample specimen is a portion taken from a storage tank, truck, or dispenser, etc., is representative of a larger amount of product, and is used for testing to determine the quality, composition, as well as performance and safety suitability of a fuel product.

*** Enforcement Action Focus Group members: Kevin Adlaf, Vanessa Benchea, Scott Fenwick, Steven Harrington, Marilyn Herman, Randy Jennings, Russ Lewis, Vernon Miller, Timothy

Morales, Tamara Paik, Matthew Sheehan, and Jenny Tabbert.

It is not expected that there will be any opposition as this proposal is simply clarifying language in HB 130.

The submitter requested Voting status in 2026.

Comments in Favor:

Regulatory:

- NCWM Interim 2026: A weights and measures official representing Colorado stated that the item is fully developed and recommended Voting status.

Industry:

- None

Advisory:
- None

Comments Against:

Regulatory:
- None

Industry:
- None

Advisory:
- None

Neutral Comments:

Regulatory:
- None

Industry:
- None

Advisory:
- NCWM Interim 2026: The FALS Chair requested that the item be assigned to FALS for further development.

Item Development:
NCWM 2026 Annual: This item remains assigned to the Fuels and Lubricants Subcommittee (FALS) because it is not yet fully developed. FALS presented the latest proposed language, shown under the Item Under Consideration above, for submission to the Regionals.

Contact: Vanessa Benchea
Fuels and Lubricants Subcommittee Chair
Vanessa.Benchea@fdacs.gov

NCWM 2026 Interim: The Committee assigned this item to FALS for further development.

Regional Associations' Comments:

CWMA 2026 Interim Meeting:

A regulator commented on what FALS reported.

The committee recommends this proposal go back to FALS for lack of information on what has transpired in the group.

WWMA 2026 Annual Meeting:

WWMA L&R Committee members Mr. Russ Lewis (Marathon Petroleum) and Mr. Scott Wagner (Colorado Division of Oil and Public Safety) recused themselves from the open hearings and working sessions for this item.

Mr. Mahesh Albuquerque (Colorado Division of Oil and Public Safety) supported this item which was submitted by Jenny Tabbert. Mr. Albuquerque stated the item was ready and recommended a VOTING status.

Mr. Steve Harrington (Oregon Weights & Measures) agreed with Mr. Albuquerque and stated that he was supportive of the item. Mr. Harrington recommended a VOTING status.

Based on the comments heard during open hearings, the WWMA L&R Committee recommends a VOTING status for this item.

NEWMA 2026 Interim Meeting:

No comments were heard from the floor.

The committee has no recommendation for this item.

SWMA 2026 Annual Meeting:

FALS chair and representative from the state of Florida Vanessa Benchea commented on behalf of the subcommittee and her state. Ms. Benchea stated the item is fully developed and recommends voting status.

SWMA Laws and Regulations committee recommends this item to be given voting status.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

NET – HANDBOOK 133

NET-27.1 1.2.6.1. Deviations Caused by Moisture Loss or Gain and Table 2-3. Moisture Allowances.

Source:
Dr. Squatch LLC

Purpose:
Provide for a 5% moisture allowance for cold process bar soap and solid deodorant products.

Item under Consideration:
Amend NIST Handbook 133 as follows:

1.2.6.1. Applying a Moisture Allowance

Some packaged products may lose or gain moisture and, therefore, lose or gain weight or volume after packaging. The amount of moisture loss depends upon the nature of the product, the packaging material, the length of time it is in distribution, environmental conditions, and other factors. Moisture loss may occur even when manufacturers follow good distribution practices. Loss of weight "due to exposure" may include solvent evaporation, not just loss of water. For loss or gain of moisture, the moisture allowances may be applied before or after the package errors are determined.

To apply an allowance before determining package errors, adjust the Nominal Gross Weight (see Section 2.3.6. "Determine Nominal Gross Weight and Package Errors"), so the package errors are increased by an amount equal to the moisture allowance. This approach is used to account for moisture loss in both the average and individual package errors.

It is also permissible to apply the moisture allowances after individual package errors and average errors are determined.

Example:

A sample of a product that could be subject to moisture loss might fail because the average error is minus or the error in several of the sample packages are found to be unreasonable errors (i.e., the package error is greater than the Maximum Allowable Variation (MAV) permitted for the package's labeled quantity).

You may apply a moisture allowance after determining the package errors by adding the allowance to the Sample Error Limit (SEL) and then, comparing the average error to the SEL to determine compliance. The moisture allowance must be added to the MAV before evaluating sample errors to identify unreasonable minus errors.

(Amended 2010)

This handbook provides "moisture allowances" for some meat and poultry products, flour, pasta, *Cannabis* (this only includes plant material but does not include products containing *Cannabis*)**, ~~and~~** dry pet food**, cold-process bar soap and solid deodorant products**. (see Chapter 2, Table 2-3. "Moisture Allowances") These allowances are based on the premise that when the average net weight of a sample is found to be less than the labeled weight, but not by an amount that exceeds the allowable limit, either the lot is declared to be within the moisture allowance or more information must be collected before deciding lot compliance or noncompliance.

(Amended 2024)

Test procedures for flour, some meat, and poultry are based on the concept of a "moisture allowance" also known as a "gray area" or "no decision" area (see Section 2.3.8. "Moisture Allowances"). When the average net weight of a sample is found to be less than the labeled weight, but not more than the boundary of the "gray area," the lot is said to be in the "gray" or "no decision" area. The gray area is not a tolerance. More information must be collected before lot compliance or noncompliance can be decided. Appropriate enforcement should be taken on packages found short weight and outside of the "moisture allowance" or "gray area."

(Amended 2002)

…

Table 2-3.
Moisture Allowances

Verifying the labeled net weight of packages of:	Moisture Allowance is:	Notes
Flour	3 %	
Dry pet food	3 %	Dry pet food means all extruded dog and cat foods and baked treats packaged in Kraft paper bags and/or cardboard boxes with a moisture content of 13 % or less at time of pack.
Pasta products	3 %	Pasta products means all macaroni, noodle, and like products packaged in kraft paper bags, paperboard cartons, and/or flexible plastic bags with a moisture content of 13 % or less at the time of pack.
Borax	see Section 2.4. Borax	
Cannabis	3 %	*Cannabis* means plant material only, and not products containing *Cannabis*, whether containing more than 0.3 % Total Delta-9 THC (also known as cannabis, Marijuana, or Marihuana) or containing 0.3 % or less Total Delta-9 THC (also known as Hemp).
Solid cold process bar soap products and solid deodorant products	**5%**	**Solid cold process bar soap means all shapes of soap used for human personal care and cleaning, that are manufactured using saponification without the application of additional, external heat and sold in solid, bar form (whether packaged or unpackaged).** **Solid deodorant products means all shapes of deodorant products used for human personal care and deodorizing, that are sold in solid (e.g., stick) form.**
Wet Tare Only[1]		

Table 2-3. Moisture Allowances		
Fresh poultry	3 %	Fresh poultry is defined as poultry above a temperature of − 3 °C (26 °F) that yields or gives when pushed with the thumb.
Franks or hot dogs	2.5 %	
Bacon, fresh sausage, and luncheon meats	0 %	For packages of bacon, fresh sausage, and luncheon meats, there is no moisture allowance if there is no free-flowing liquid or absorbent material in contact with the product and the package is cleaned of clinging material. Luncheon meats are any cooked sausage product, loaves, jellied products, cured products, and any sliced sandwich-style meat. This does not include whole hams, briskets, roasts, turkeys, or chickens requiring further preparation to be made into ready-to-eat sliced product. When there is no free-flowing liquid inside the package and there are no absorbent materials in contact with the product, Wet Tare and Used Dried Tare are equivalent.
[1] Wet tare procedures must not be used to verify the labeled net weight of packages of meat and poultry packed at an official United States Department of Agriculture (USDA) facility and bearing a USDA seal of inspection. The Food Safety and Inspection Service (FSIS) adopted specific sections of the 2005 4th edition of NIST Handbook 133 by reference in 2008 but not the "Wet Tare" method for determining net weight compliance. FSIS considers the free-flowing liquids in packages of meat and poultry products, including single-ingredient, raw poultry products, to be integral components of these products (see Federal Register, September 9, 2008 [Volume 73, Number 175] [Final Rule – pages 52189-52193]).		
Notes: (1) There is no moisture allowance when inspecting meat and poultry from a USDA inspected plant when Used Dry Tare and "Category A" sampling plans are used. (2) For the Wet Tare Only section of Table 2-3. "Moisture Allowances," free-flowing liquid and liquid absorbed by packaging materials in contact with the product are part of the wet tare. (Note Added 2010)		

(Amended 2010, 2013, and 2024)

Previous Status:
2027: New Proposal

Original Justification:

1. Purpose

This report summarizes the results of testing commissioned by Dr. Squatch, LLC ("Dr. Squatch"), which demonstrates that, under ordinary and customary environmental conditions, cold-process bar soap naturally loses weight over time due to expected post-production moisture evaporation. The test results support inclusion of cold-process bar soap within a defined 5 percent moisture allowance under NIST Handbook 133.

2. Product Characteristics

Cold-process bar soap is manufactured through saponification without the application of external heat. The finished product contains inherent water content that contributes to bar structure, curing, and consumer use characteristics. After molding, demolding, cutting, and packaging, the bar continues to undergo natural moisture evaporation.

This gradual evaporation is a well-recognized physical property of cold-process soap and is not indicative of product defect, formulation change, or deceptive packaging practices. Rather, it reflects the natural equilibration of water content with ambient environmental conditions.

3. Stability and Environmental Testing

a.Testing Methodology

Dr. Squatch submitted multiple 5 oz cold process bar soap samples to a third-party laboratory, Micro Quality Labs (now known as Certified Laboratories), for formal stability evaluation under controlled environmental conditions in accordance with the laboratory's protocol.

Testing was conducted on multiple SKUs per protocol, with samples stored in their proposed packaging. Bars were placed sideways in environmental chambers and evaluated at defined time intervals.

Testing was performed on one representative lot per product, per protocol consistent with standard cosmetic stability study design.

Testing was conducted under the following controlled conditions:

<u>Real Time Stability</u>

- 25°C ± 2°C
- 60% RH ± 5%
- Evaluated at: Initial, 1, 2, 3, 6, and 12 months

<u>Accelerated Stability</u>

- 40°C ± 2°C
- 75% RH ± 5%
- Evaluated at: Initial, 1, 2, 3, and 6 months

<u>Elevated Temperature Stress</u>

- 50°C ± 2°C
- Evaluated at: Initial and 1 month

<u>Freeze/Thaw Stress</u>

- −10°C to −20°C

- Three consecutive cycles

At each interval, the following parameters were evaluated:

- Appearance
- Texture
- Color
- Odor
- Package compatibility
- % Weight loss/gain
- Water activity
- Freeze/thaw integrity (3 cycles)

The soaps were stored under real time, accelerated, and stress conditions. Weight was measured at defined intervals throughout the study, and loss/gain was recorded as part of the physical & analytical testing specifications.

Weight measurements were conducted as part of the stability study under controlled environmental conditions (25 ± 2 °C / 60% ± 5% RH, 40 ± 2 °C / 75% ± 5% RH, and 50 ± 2 °C). Designated samples were assigned specifically for weight evaluation at predefined intervals.

Initial weights were recorded at study initiation using a calibrated analytical balance, and each sample was labeled accordingly to ensure traceability. At each testing interval, the designated sample was removed from the chamber and equilibrated to ambient conditions for approximately 24 hours prior to measurement to ensure consistent and reliable readings. Samples were then reweighed using the same calibrated balance, and all measurements were documented in the laboratory's data recording system.

Weight loss was calculated using the formula: (Final Weight – Initial Weight) / Initial Weight × 100.

b. Testing Results

The measured results show, under the conditions set forth above, there is measurable, predictable weight loss and moisture loss over time:

- Under controlled stability conditions, bars lost up to approximately 4 percent of net weight over six months and up to approximately 6 percent over twelve months.
- Under accelerated low-humidity exposure conditions, moisture loss plateaued at approximately 11 percent.

The progressive weight reduction under ordinary storage conditions is consistent with the applied environmental exposure and required stability measurements and supports the conclusion that the observed weight loss is attributable to natural moisture evaporation. Moisture loss was further evaluated through water activity (a_w) testing using a calibrated water activity meter, which determines a_w by measuring the equilibrium relative humidity (ERH) of the headspace in a sealed chamber containing the sample. The measured a_w values showed a corresponding decrease in available moisture and correlated with the observed weight reduction, confirming that the weight loss is attributable to moisture evaporation.

Weight Loss Under Controlled Stability Conditions		
Starting Weight (oz.)	0-6 Month Weight (oz.), Reflecting 4% Loss	6-12 Weight (oz.), Reflecting 6% Loss
5	4.8	4.7
5.1	4.9	4.8
5.2	5.0	4.9
5.3	5.1	5.0
5.4	5.2	5.1
5.5	5.3	5.2
5.6	5.4	5.3
5.7	5.5	5.4
5.8	5.6	5.5
5.9	5.7	5.5
6	5.8	5.6
6.1	5.9	5.7
6.2	6.0	5.8

These profiles reasonably reflect common environmental conditions (e.g., temperature and relative humidity). These findings demonstrate that measurable weight and moisture loss occurs within normal commercial timeframes and is sensitive to environmental heat and humidity, factors outside the manufacturer's control once product enters distribution.

4. Manufacturing Controls

Under common manufacturing practices, in order to account for moisture loss, cold-process soap bars can be intentionally manufactured above labeled net weight. This overfill framework ensures that, at the time of manufacture and packaging, products comply with labeled net weight requirements. However, the ability for over-filling to account for all reasonably expected environmental conditions is imperfect. Indeed, post-packaging moisture evaporation may reduce weight over extended distribution periods, particularly under relatively elevated heat or relatively low humidity conditions that are outside of the manufacturer's controls.

5. Observed Weight Reduction Over Time

Applying observed stability loss rates to a 5.3 oz. manufactured bar (i.e., overfilled to yield a target a bar product weighing at least 5 oz.):

- A 4 percent reduction results in a weight of approximately 5.1 oz.
- A 6 percent reduction results in a weight of approximately 5.0 oz.
- Under more extreme environmental conditions, reductions may approach higher levels, including those observed in accelerated testing.

These results demonstrate that natural post-production moisture loss can reasonably approach the magnitude of a 5 percent allowance over time, even where the product was compliant at time of manufacture.

6. Regulatory Relevance

NIST Handbook 133 recognizes that certain products may experience unavoidable moisture loss due to ordinary and customary exposure to distribution conditions. The data summarized above demonstrate that cold-process bar soap exhibits the same physical characteristics as other products currently listed in Table 2-3 for moisture allowances.

The observed weight changes:

- Occur after packaging.
- Are driven by ambient environmental conditions.
- Are predictable and scientifically explainable.
- Are not the result of deceptive or deficient fill practices.
- Are outside of the manufacturer's control.

Accordingly, inclusion of cold-process bar soap within a defined 5 percent moisture allowance aligns regulatory application with established product science and promotes uniform, science-based enforcement.

7. Conclusion

The attached data demonstrate that cold-process bar soap naturally and predictably loses moisture under normal distribution conditions, with documented reductions approaching 4 to 6 percent within commercially relevant timeframes.

A defined 5 percent moisture allowance for cold-process bar soap would appropriately account for this unavoidable physical property while preserving net quantity integrity at the time of manufacture. Such clarification would ensure consistent and scientifically grounded application of Handbook 133 across jurisdictions.

The submitter requested that this be a Voting Item in 2027.

Comments in Favor:

Regulatory:
-

Industry:
-

Advisory:
-

Comments Against:

Regulatory:
-

Industry:
-

Advisory:
-

Neutral Comments:

Regulatory:
-

Industry:
-

Advisory:
-

Item Development:
New Proposal in 2027

Regional Associations' Comments:
New Proposal in 2027

CWMA 2026 Interim Meeting:

One regulator is requesting more data on this proposal.

The committee recommends a developing status.

WWMA 2026 Annual Meeting:

Ms. Wendy Hahn (Stanislaus County, California) wondered whether the issue identified by this item may be industry-wide and not necessarily limited to cold process bar soap.

Mr. David Aguayo (San Luis Obispo County, California) pointed out that the data provided focuses on a single commodity and manufacturer and does not provide further data to address deodorant products and their different formulations. The item also does not include a definition for the commodities intended to be provided with a moisture loss allowance.

Mr. John Sorfleet (Santa Clara County, California) had difficulty determining whether this item was addressing a single product or an entire classification of products and also expressed that more data was necessary to support a 5% moisture loss allowance. He recommended a DEVELOPING status.

Mr. Mahesh Albuquerque (Colorado Division of Oil and Public Safety – Representing Aaron Yanker, Colorado Department of Agriculture Weights & Measures) questioned the merit of the proposal and whether it was fully developed. He also questioned how the study on soap was conducted and noted that deodorant was not addressed by it. His recommendation was that the item be WITHDRAWN or DEVELOPING.

Mr. Kurt Floren (County of Los Angeles, California) agreed with the observations about the lack of data for deodorant and felt that there was not enough data to support the 5% moisture loss allowance for cold process bar soap. He also expressed that he would like to see more commodities added to Table 2-3 (moisture loss allowance table). Mr. Floren stated that he had not seen the study in question and would like to review it. He encouraged the submission of data to support more commodities to be included in Table 2-3 and did not want to see this item withdrawn. He recommended a DEVELOPING status.

Mr. Mike Brooks (Arizona Weights & Measures) supported the comments made by Mr. Floren and encouraged participation from other industry stakeholders. He recommended a DEVELOPING status.

Mr. Kevin Schnepp (California Division of Measurement Standards) agreed with the concerns raised by others and agreed that thoroughly vetted peer-reviewed data would be necessary for this item to be considered. He recommended a DEVELOPING status.

Based on the comments heard during open hearings, the WWMA L&R Committee recommends a DEVELOPING status for this item. The committee also encourages the submitter to solicit more industry engagement in the development and collection of peer-reviewed data to justify the 5% moisture loss allowance reflected in this item for both cold process bar soap and deodorant representative of the industries.

NEWMA 2026 Interim Meeting:

A Regulator from NJ stated the submitter asks that both cold-process bar soap and solid deodorant be given a 5% moisture allowance, but there is only one study for soap, nothing for deodorant. Additionally, it is not clear what "flavors" of soap were used in this study and that some "flavors" of this brand consistently weigh more, and others

consistently weigh less. Further, the study only encompasses one brand and is not representative of the industry as a whole. NJ would like to see a wider data set, and recommends a Developing status.

A Regulator from NY stated they don't disagree that bar soaps and solid deodorants lose moisture or are subject to moisture loss, but the commodities listed in Table 2-3 are not an all-inclusive list, nor are they the only commodities subject to a moisture allowance. NY appreciates the test data and results that have been submitted for justification, but more research and data (including regulatory involvement) is necessary before we add more commodities to this table. That being said, any commodity that is subject to a moisture allowance can and should be considered by the regulator. Therefore, this item should be a Developing item.

A Regulator from Vermont needs to see the details of this study. It appears to only involve one brand and a limited number of items, so Vermont would not support a moisture allowance based on this "study". Vermont recommends a Developing status.

The committee Recommends a developing status.

SWMA 2026 Annual Meeting:

Submitter recommends voting status.

Robert Huff representing the state of Delaware opposes this item and recommends withdrawing.

Alison Wilkinson representing the state of Maryland opposes this item and recommends withdrawing

Brian Terry representing the state of Arkansas commented that there was not sufficient data and that stick deodorant was not was completely excluded from the study. Arkansas opposes this item and recommends withdraw.
Mark Lovisa representing the state of Louisiana commented that the data proves that the commodity does lose moisture, however he suggests this could possibly be addressed with a simple change to the packaging. Louisiana opposes this item and recommends withdrawing.

Tory Brewer representing the state of West Virgina commented that the proposer did provide data showing that moisture loss is occurring on this commodity however he agrees there should be more data submitted to support this item moving forward. Mr. Brewer does not want to discourage industry from conducting studies to determine if moisture loss is occurring on commodities. West Virigina recommends developing status.

SWMA Laws and Regulations committee recommends this item to be withdrawn.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

NET-27.2 2.3.5. Procedures for Determining Tare. and 2.3.5.2. Special Procedures for Determining Tare.

Source:
County of Los Angeles Department of Agricultural Commissioner/Weights and Measures

Purpose:
Establish a standardized procedure for preparing gel soaker pads for use as used dry tare during net content inspections of meat and poultry packages. Clear, reliable, uniform, and demonstrably consistent guidance to inspectors on means to establish that a gel soaker pad is considered adequately dried for tare determination is necessary to promote consistent inspection practices, to improve the accuracy and repeatability of net content verification, and to reduce variations in enforcement among jurisdictions.

Item under Consideration:
Amend NIST Handbook 133 as follows:

2.3.5. Procedures for Determining Tare

There are three types of tare for the inspection of packaged goods. The tare weight may vary considerably from package to package as compared with the variability of the package net contents, even for packages in the same production lot. The basic test procedure in this handbook considers the variation for all tare materials.

a. Used Dry Tare

Used Dry Tare is used tare material that has been air dried, or dried in some manner to simulate the unused tare weight. It includes all packaging materials that can be separated from the packaged product, either readily (e.g., by shaking) or by washing, scraping, ambient air drying, or other techniques involving more than "normal" household recovery procedures, but not including laboratory procedures like oven drying. Labels, wire closures, staples, prizes, decorations, and such are considered tare. Used Dry Tare is available regardless of where the packages are tested. The net content verification procedures described in this handbook reference Used Dry Tare.

Note: When testing frozen foods with Used Dry Tare, the frost found inside frozen food packages is included as part of the net contents, except in instances in which glazed or frozen foods are tested according to Section 2.6. "Net Weight of Encased-in-Ice and Ice Glazed Products."

Note: When testing meat or poultry packages that contain a gel soaker pad*, follow the procedure in Section 2.3.5.2.(c) to prepare the gel soaker pad(s) for use as Used Dry Tare during package testing.

2.3.5.2. Special Procedures for Determining Tare

a. Aerosols and Other Pre-Pressurized Containers

Aerosol and other pre-pressurized containers (aerosols) are handled differently for two reasons: first, regulations in NIST Handbook 130 under the Uniform Packaging and Labeling Regulation (UPLR) require that packages designed "to deliver" the product under pressure, "must state the net quantity of the contents that will be expelled when the instructions for use as shown on the container are followed." This means that any product retained in aerosol containers after full dispersion is included in the tare weight. Second, aerosol containers must not be opened because they are pressurized; for safety reasons they should not be punctured or opened. When emptying aerosol containers to determine a tare weight, exhaust them in a well-ventilated area (e.g., under an exhaust hood or outdoors) at least 15 m (50 ft) from any source of open flame or spark.

To ensure that the container properly dispenses the product, read and follow any dispensing instructions on the package. If shaking during use is specified in the instructions, periodically shake (at least two or three times during expulsion of the product). If directions are not given, shake the container five times with a brisk wrist twisting motion. If the container has a ball agitator, continue the shaking procedure for one minute after the ball has shaken loose.

b. Vacuum Packed Coffee

The gross weight of a container (typically a metal can) of vacuum-packed coffee will be more after the seal is broken and air enters the can. In the procedure to determine the tare weight of the packaging material, correct the gross weight determined for unopened cans as follows. Use the initial tare sample packages, weigh, and record the gross weight of the product-filled cans before and after breaking the vacuum seal. Compute the average gross weight difference (open weight minus sealed weight) and record this in Box 13a of the report form. The nominal gross weight equals the average tare weight minus the average difference in gross weights plus the labeled weight (Box 14): Box 13 − Box 13a + Box 1.

(Amended 2002)

c. Used Dry Tare for Gel Soaker Pads in Packaged Meat and Poultry

When testing meat or poultry packages that contain a gel soaker pad*, follow the procedure below to prepare the gel soaker pad(s) for use as Used Dry Tare during package testing.

Procedure for Preparing the gel soaker pad as Used Dry Tare:

1. Place a layer of two paper towels on a firm surface and lay the used gel soaker pad(s) atop them.

2. Place two paper towels over the gel soaker pad(s).

3. Gently press or squeeze the pad to transfer excess liquid into the paper towels, ensuring that pressure from hands does not burst or damage the integrity of the gel soaker pad(s).

4. Replace the paper towels as they become wet and continue gentle pressing with fresh paper towels as described in Steps 1, 2, and 3.

5. Repeat this process until there is no observable moisture transfer to the paper towels.

Once there is no observable moisture transfer to the paper towels, the gel soaker pad is considered ready for use as the Used Dry Tare.

***Gel soaker pad is an absorbent liner often found in meat, poultry, and seafood packages. It is designed to absorb and trap excess liquids (e.g., purged water and blood) to prevent bacterial growth and extend product shelf life. They typically consist of food-safe silica gel (purified sand) or plant cellulose, which is wrapped in a perforated, non-toxic polymer (plastic) shell.**

Previous Status:

2027: New Proposal

Original Justification:

NIST Handbook 133 currently defines Used Dry Tare but does not provide a specific procedure for preparing (removing moisture to an acceptably "dry" state) gel soaker pads commonly found in meat and poultry packages. As a result, inspectors may use different methods to determine when a gel soaker pad has been sufficiently dried, leading to inconsistent tare weights and variability in net content determinations. Establishing a simple, practical procedure using paper towels and repeated, consistent manual pressure until no moisture is transferred from the gel soaker pads provides an objective and repeatable method that can be performed in both field and laboratory settings. This promotes uniform enforcement and improves the consistency and reliability of net content inspections without changing the existing definition of Used Dry Tare.

The submitter noted the following possible concerns:

1. No standardized amount of pressure
2. Not representative of "Used Dry Tare"
3. May encourage excessive manipulation

The submitter requested that this be a Voting Item in 2027.

Comments in Favor:

Regulatory:

•

Industry:

•

Advisory:

•

Comments Against:

Regulatory:
-

Industry:
-

Advisory:
-

Neutral Comments:

Regulatory:
-

Industry:
-

Advisory:
-

Item Development:
New Proposal in 2027

Regional Associations' Comments:
New Proposal in 2027

CWMA 2026 Interim Meeting:

Two representatives voiced concerns on how the data was obtained and the fairness in testing to the producer.

The committee recommends a developing status.

WWMA 2026 Annual Meeting:

WWMA L&R Committee member Mr. Khoa Lam recused himself from the open hearings and working sessions for this item.

During open hearings a presentation was provided by Ms. Annie Tsou (County of Los Angeles, California – representing the submitter of the item), a copy of the presentation is available on the WWMA website.

Mr. Kurt Floren (County of Los Angeles, California) recognized that any procedure to be used would need to be standardized; this procedure uses paper towels to absorb moisture. Mr. Floren shared proposed edits, those edits are also available on the WWMA website. Mr Floren recommended a VOTING status with these edits.

Mr. Mike Brooks (Arizona Weights & Measures) applauded the work that went into this item and emphasized that the process should not be limited to poultry as other prepackaged products use soaker pads. He also expressed that the item may not be ready for a vote and wondered whether a 25-pound standard, for instance, could be used to provide standardized pressure. The use of standard is something Arizona is attempting to collect information on currently. Mr. Brooks recommended a DEVELOPING status.

Mr. Kevin Schnepp (California Division of Measurement Standards) supported the edits provided by Mr. Floren but also shared the concerns raised by Mr. Brooks.

Mr. Kenn Burt (San Luis Obispo County, California) expressed concerns that gel soaker pads vary significantly in their composition and that they do not allow the liquid in the pad to come out; the trapped liquid cannot be removed even if

the outside of the pad is dry. Mr. Burt recommended a DEVELOPING status, possibly with a note that not all moisture will be able to be extracted.

Ms. Misael Martinez (Representing the WWMA L&R Committee) asked the submitter of the item about observable moisture: was there a range across pads regarding the number of paper towels used?

Ms. Tsou responded to the L&R Committee expressing that it depends on pads, of which there is a variety, and the initial moisture, noting that she recalled a range of about 20 to 50 paper towels. Ms. Tsou also explained that through her studies, using a paper towel takes approximately 30 minutes and that training is required for the inspector to apply pressure appropriately; but that this method is more effective than the use of a standardized weight which could burst the soaker pad, additionally a paper towel absorbs the moisture. She also agreed that not all the moisture would be extracted and shared that after 5 samples she found that it takes 24 hours to 14 days for the pads to dry completely.

Mr. John McGuire (NIST OWM) stated that NIST has not formulated their analysis, so they do not have a formal status recommendation, however he did support the edits provided by Mr. Floren.

Mr. Brooks recognized that the pads take a long time to dry and expressed that he understands the intent. He cautioned that the language may be too subjective for a National Standard.

Mr. Floren explained that gel soaker pads are unique and that their purpose by design is to keep moisture in; that they will never return to their original state. Mr. Floren acknowledged the concerns about pressure, and that their office had attempted the use of standardized weights, but the results did not support their use. Mr. Floren also expressed that should the item remain on the agenda that it should be assigned to a work group which would be able to collect the information necessary to develop the item further. Mr. Floren recommended an INFORMATIONAL status.

Mr. John Sorfleet (Santa Clara County, California) supported the item but recognized the concerns that the language may be subjective.

Mr. Mahesh Albuquerque (Colorado Division of Oil and Public Safety – Representing Aaron Yanker, Colorado Department of Agriculture Weights & Measures) expressed that he was appreciative of the work that has been put into this item and was prepared to support a voting status for this item but based on the testimony heard during open hearings he recommends an INFORMATIONAL status.

Mr. Richard Suiter (Richard Suiter Consulting) suggested that manufacturers of gel soaker pads be required to provide a tare weight that can be used when performing package inspections.

The WWMA L&R Committee recommends an INFORMATIONAL status based on these comments, including the edits provided at open hearings as shown below in red font and double underlined. The WWMA L&R Committee further recommends that the NCWM L&R Committee requests that the NCWM Chair form a task group, and that this item be assigned to that task group.

2.3.5. Procedures for Determining Tare

There are three types of tare for the inspection of packaged goods. The tare weight may vary considerably from package to package as compared with the variability of the package net contents, even for packages in the same production lot. The basic test procedure in this handbook considers the variation for all tare materials.

a. Used Dry Tare

Used Dry Tare is used tare material that has been air dried, or dried in some manner to simulate the unused tare weight. It includes all packaging materials that can be separated from the packaged product, either readily (e.g., by shaking) or by washing, scraping, ambient air drying, or other techniques involving more than “normal” household recovery procedures, but not including laboratory procedures like oven drying. Labels, wire closures, staples, prizes, decorations, and such are considered tare. Used Dry Tare is available regardless of where the packages are tested. The net content verification procedures described in this handbook reference Used Dry Tare.

Note: When testing frozen foods with Used Dry Tare, the frost found inside frozen food packages is included as part of the net contents, except in instances in which glazed or frozen foods are tested according to Section 2.6. "Net Weight of Encased-in-Ice and Ice Glazed Products."

Note: When testing packages of meat, ~~or~~ poultry, seafood, or similar products ~~packages~~ that contain a gel soaker pad* and employing Used Dry Tare procedures, follow the procedure in Section 2.3.5.2.(c) to prepare the gel soaker pad(s) for use as Used Dry Tare during package testing.

2.3.5.2. Special Procedures for Determining Tare

a. Aerosols and Other Pre-Pressurized Containers

Aerosol and other pre-pressurized containers (aerosols) are handled differently for two reasons: first, regulations in NIST Handbook 130 under the Uniform Packaging and Labeling Regulation (UPLR) require that packages designed "to deliver" the product under pressure, "must state the net quantity of the contents that will be expelled when the instructions for use as shown on the container are followed." This means that any product retained in aerosol containers after full dispersion is included in the tare weight. Second, aerosol containers must not be opened because they are pressurized; for safety reasons they should not be punctured or opened. When emptying aerosol containers to determine a tare weight, exhaust them in a well-ventilated area (e.g., under an exhaust hood or outdoors) at least 15 m (50 ft) from any source of open flame or spark.

To ensure that the container properly dispenses the product, read and follow any dispensing instructions on the package. If shaking during use is specified in the instructions, periodically shake (at least two or three times during expulsion of the product). If directions are not given, shake the container five times with a brisk wrist twisting motion. If the container has a ball agitator, continue the shaking procedure for one minute after the ball has shaken loose.

b. Vacuum Packed Coffee

The gross weight of a container (typically a metal can) of vacuum-packed coffee will be more after the seal is broken and air enters the can. In the procedure to determine the tare weight of the packaging material, correct the gross weight determined for unopened cans as follows. Use the initial tare sample packages, weigh, and record the gross weight of the product-filled cans before and after breaking the vacuum seal. Compute the average gross weight difference (open weight minus sealed weight) and record this in Box 13a of the report form. The nominal gross weight equals the average tare weight minus the average difference in gross weights plus the labeled weight (Box 14): Box 13 − Box 13a + Box 1.

(Amended 2002)

c. Used Dry Tare for Gel Soaker Pads in Packaged Meat, ~~and~~ Poultry, Seafood, or Similar Products when employing Used Dry Tare Procedures

When testing packages of meat, ~~or~~ poultry, seafood, or similar products ~~packages~~ that contain a gel soaker pad* and employing Used Dry Tare procedures, follow the procedure below to prepare the gel soaker pad(s) for use as Used Dry Tare during package testing.

Procedure for Preparing the gel soaker pad as Used Dry Tare:

1. **Place a layer of two paper towels on a firm surface and lay the used gel soaker pad(s) atop them.**

2. **Place two paper towels over the gel soaker pad(s).**

3. Gently press or squeeze the pad to transfer excess liquid into the paper towels, ensuring that pressure from hands does not burst or damage the integrity of the gel soaker pad(s).

4. Replace the paper towels as they become wet and continue gentle pressing with fresh paper towels as described in Steps 1, 2, and 3.

5. Repeat this process until there is no observable moisture transfer to the paper towels.

Once there is no observable moisture transfer to the paper towels, the gel soaker pad is considered ready for use as the Used Dry Tare.

NOTE: Due to variances that can occur among packages in a lot, including use of differing sizes or numbers of gel soaker pads, this procedure should be applied to every package in the sample under testing.

***Gel soaker pad is an absorbent liner often found in meat, poultry, and seafood packages. It is designed to absorb and trap excess liquids (e.g., purged water and blood) to prevent bacterial growth and extend product shelf life. They typically consist of food-safe silica gel (purified sand) ~~or plant cellulose~~, which is wrapped in a perforated, non-toxic polymer (plastic) shell.**

NEWMA 2026 Interim Meeting:

A Regulator from NH stated prepackaged chicken injected with liquid solutions undergoes significant moisture purge over time (often taking up to three weeks from packing plant to retail shelf). Liquid collects in soaker pads and cannot be easily removed. Using an official dry tare procedure, a package of chicken declared at 3.5 pounds was found to be 0.5 pounds underweight. On-site packed items do not experience this same level of degradation. Consumers should not bear the loss for underweight packages. Packers must align their tare determination methods with what is actually found in the retail case after multiple days. NH believes the proposal has merit and recommends Developing status to refine tare analysis expectations for packers.

A Regulator from NY stated they appreciate adding a uniform procedure to prepare gel soakers for testing. But, they are not sure that used soaker pads will weigh the same as unused soaker pads by using this procedure, in cases where the gel pads are completely saturated. These pads may need to be dried out over time or using another means. When unused dry tares are available, this should be the first option. If this is not an option, the inspector would have to consider what the best procedure would be to dry the pads to the best of their ability to duplicate the weight of an unused soaker pad. NY recommends this item be Developing status.

A Regulator from Vermont supports this proposal as having a recognized procedure for something that is generally good but are unsure if this procedure is fully developed. Vermont would recommend a Developing status.

A regulator from NJ recommends replacing the word “blood” with “myoglobin”. The regulator is unsure what “gentle pressure” is and recommends Developing status

The committee recommends a developing status.

SWMA 2026 Annual Meeting:

Submitter recommends voting status.

Mark Lovisa representing the state of Louisiana supports this item but has some concerns that federal law specifically USDA would require the use of the unused dry tare procedure to determine tare. Louisiana recommends voting status.

Brian Terry representing the state of Arkansas echoes comments made from the state of Louisiana, is neutral on this item, and recommends working with NIST OWM to determine if this is an appropriate procedure.

Robert Huff representing the state of Delaware does not support this item and does not believe that this procedure would result in the soaker pad being dried in sufficient enough time to determine a correct tare. Recommends the item be withdrawn.

Chad Parker representing the state of North Carolina echoes the comments made from the state of Delaware and recommends withdraw.

SWMA Laws and Regulations committee recommends this item be withdrawn.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

NET-27.3 NIST Handbook 133, Chapter 2 Reformatting

Source:
NIST Office of Weights and Measures

Purpose:
Update Handbook 133 to NIST Library Standards and HTML Formatting requirements. These requirements are necessary to transition from the printed publication to an electronic/digital one.

Item under Consideration:
Amend NIST Handbook 133, Chapter 2 as follows:

Chapter 2 NIST Handbook 133

2.1 Scope

The gravimetric test method uses weight measurement to determine the net quantity of contents of packaged goods. This chapter includes general test methods to determine the net quantity of contents of packages labeled in terms of weight. Gravimetric testing is the preferred method of testing most products because it reduces destructive testing and improves measurement accuracy.

Note: If Multiunit or Variety Packages are to be inspected, refer to Chapter 5. "Specialized Test Procedures" for guidance in testing. If a total quantity declaration is being verified and the **Maximum Allowable Variation (**MAV**)** to be applied is not based on a percentage of the labeled quantity, refer to Section 1.2.4.1. "Total Quantity MAV for Multiunit and Variety Packages."

(Note Added 2022 **& Amended 20XX)**

2.2.1 Scale Requirements

Use a scale (for this handbook, the term "scale" includes balances) that has at least 100 scale divisions. It must have a load-receiving element of sufficient size and capacity to hold the packages during weighing. It also requires a scale division no larger than 1/6 of the ~~Maximum Allowable Variation (~~MAV~~)~~ for the package size being weighed. The MAV/6 requirement ensures that the scale has adequate resolution to determine the net contents of

the packages. Subsequent references to product test results requiring the agreement to within one scale division are based on scale divisions that are equal to or only slightly smaller than the MAV/6. (see Appendix A, Table 2-5. "Maximum Allowable Variations (MAVs) for Packages Labeled by Weight.")

Example:
The MAV for packages labeled with a net weight 113 g (0.25 lb) is 7.2 g (0.016 lb). Divide (÷) the MAV by 6 to obtain the maximum scale division that can be used to determine the gross, tare and net weights for a package size.

7.2 g (0.016 lb) ÷ 6 = 1.2 g (0.002 lb)

In this example, a 1 g (0.002 lb) scale division would be the maximum scale division appropriate for weighing these packages.

(Amended 2010 **& Amended 20XX)**

2.2.4.1 Increasing-Load Test

Use **traceable** ~~certified~~ mass standards to conduct an "increasing-load test" with all test loads centered on the load-receiving element. Start the test with the device on zero and progress with increasing test loads to a "maximum test load" of at least 10 % more than the gross weight of the packages to be tested. Use at least three different test loads of approximately equal value to test the device up to the "maximum test load." Verify the accuracy of the device at each test load. Include the package tare weight as one of the test points.

(Amended 20XX)

2.2.5. Other Test Equipment Requirements

Specifications, tolerances, and other technical requirements for the other measurement standards and test equipment cited in this handbook are specified in the following NIST publications. ~~These~~**The most current** publications may be obtained from the Office of Weights and Measures **website** (**www.nist.gov/pml/owm/nist-handbook-105-series**).

1. Mass Standards. Use NIST Handbook 105-1, "Specifications and Tolerances for Field Standard Weights" ~~(2019)~~

2. Volumetric Flasks and Cylinders. Use NIST Handbook 105-2, "Specifications and Tolerances for Reference Standards and Field Standard Weights and Measures – Field Standard Measuring Flasks" ~~(1996)~~

3. Stopwatches. Use NIST Handbook 105-5, "Specifications and Tolerances for Reference Standards and Field Standard Weights and Measures – Field Standard Stopwatches" ~~(1997)~~

~~4.~~ Thermometers. Use NIST Handbook 105-6, "Specifications and Tolerances for Reference Standards and Field Standard Weights and Measures – Specifications and Tolerances for Thermometers" ~~(1997)~~

(Amended 20XX)

2.3 Basic Test Procedure for Gravimetric Testing of Net Weight

The following steps apply when gravimetrically testing any type of packaged product except borax and glazed or frozen foods. If the tested products contain borax, refer to Section 2.4. "Borax." If encased-in-ice or ice glazed food is tested, refer to Section 2.6. "~~Determining the~~ Net Weight of Encased-in-Ice and Ice Glazed Products."

- Identify and define the inspection lot.
- Select the sampling plan.
- Record inspection data using an official inspection report.
- Select the random sample.
- Select and determine tare.
- Determine nominal gross weight and package errors.
- Evaluate compliance with the Maximum Allowable Variation (MAV) requirement and the average requirement.

Each step will be described in more detail in the following sections.

(Amended 20XX)

2.3.1 Define the Inspection Lot

The **inspector** ~~official~~ defines which packages are to be tested and the size of the inspection lot. The lot may be smaller or larger than the production lot defined by the packer. Only take action on the packages contained in the lot that has been defined.

Lots may be made up of either standard or random weight packages. Standard packages are those with identical net content declarations such as containers of soda in 2 L bottles and 2.26 kg (5 lb) packages of flour. "Random packages" are those with differing or no fixed pattern of weight, such as packages of meat, poultry, fish, or cheese.

Notes:

Typically, the inspector will not have ~~Normally, there will never be~~ access to the entire "production lot" from a manufacturer. The "inspection lot" is selected from packages that are available for inspection/test at any location in the distribution chain.

When packages are tested in retail stores, it is not necessary to sort by lot code. If lot codes are mixed during retail testing, be sure to record the lot codes for all of the packages included in the sample so that the inspector and other interested parties can follow up on the information. For special reasons, such as a large number of packages or the prior history of problems with the product or store, the inspector may choose to define a lot as only one type of packaged product (e.g., ground beef). Another reason to narrowly define the lot is if the results of an audit test indicate the possibility of a shortage in one particular lot code within a particular product.

Example:
An inspection lot should consist of all of the cans of a single brand of peach halves, labeled with a net quantity of 453 g (1 lb).

(Amended 20XX)

2.3.3. Record Inspection Data

Use an official inspection report to record information. Attach additional worksheets, test notes, and other information as needed. This handbook provides random and standard packaged products model inspection report forms in Appendix C, "Model Inspection Report Forms." ~~(Refer to Appendix C for instructions on how to complete the forms' box numbers.)~~ Modify the model reports and the box numbers to meet your agency's needs. Other formats that contain more or less information may be acceptable. The procedure below describes how to record inspection data using the "Model Inspection Report Forms" in Appendix C. The same information should be recorded regardless of the form used.

Note: Inspection reports should be legible and complete. Good recordkeeping practices typically include record retention for a specified period of time.

(Amended 20XX)

2.3.3.1. Procedure for Recording Data

1. Record the product identity, packaging description, lot code, location of test, and other pertinent data.

2. Record the labeled net quantity of contents in Box 1. Record both metric and U.S. customary declarations if they are provided on the package label.

   Example:
   If the labeled weight is 453 g (1 lb), record this in Box 1.

   Note: When the declaration of net quantity on the package includes both the International System of Units (SI) (metric) and U.S. customary units, the larger of the two declarations must be verified. The rounding rules in NIST Handbook 130, Uniform Packaging and Labeling Regulations **(UPLR), Appendix B** permit packers to round declarations up or down based on their knowledge of their package filling targets and the accuracy of packaging equipment.

3. Determine the larger of the values by converting the SI declaration to U.S. customary units, or vice versa, using conversion factors **in Appendix E., "General Tables of Units of Measurement,"** that are accurate to at least six places. Compare the values, and use the larger value in computing the nominal gross weight (see later steps). Indicate on the report which of the declarations is being verified when packages labeled with two units of measure are encountered.

   Example:
   *If the net weight declared on a package is 1 lb, the metric equivalent (accurate to six significant digits) is 453.592 g. Do not round down or truncate values in the calculations until the nominal gross weight is determined and recorded. If the package is labeled 454 g, then the metric declaration is larger than the U.S. customary ~~declaration~~ **(1 lb),** and **the metric (454 g) declaration** should be used to verify the net contents of the package.*

4. Record the unit of measure in Box 2. The unit of measure is the minimum division of the unit of measurement used to conduct the test. If a scale is used that reads to thousandths of a pound, the unit of measure is 0.001 lb even if the scale division is 0.002 lb or 0.005 lb.

   Examples:
   If the scale has a scale division of 0.5 g, the unit of measure is 0.1 g. If a weighed package ~~that~~ has an error of "− 0.5 g," record the error as "− 5" using "dimensionless units."

   $$-0.5\ g \div 0.1 = 5 \text{ dimensionless units}$$

If the scale indicates in increments of 0.002 lb, the unit of measure is 0.001 lb. If a weighed package has an error of "+ 0.016," record the error as "+ 16" using "dimensionless units."

0.016 lb ÷ 0.001 = 16 dimensionless units

Notes:

(1) When using dimensionless units, multiply package errors by the unit of measure to obtain the package error in weight.

(2) The Basic Test Procedure does not prohibit the use of units of weight instead of dimensionless units when recording package errors, nor does it prohibit the use of software programs to determine product compliance. Refer to Appendix F, "Glossary," for the definition of dimensionless units.

5. Enter the appropriate MAV value in Box 3 for the type of package (weight, volume, etc.), the labeled net contents, and the unit of measure using Appendix A. Tables 2-5 through 2-10.

6. Determine the MAV in dimensionless units and record in Box 4 on the **Appendix C-Model Inspection Report Forms** ~~Standard Package Report form~~ (a dimensionless unit is obtained by dividing the MAV recorded in Box 3 by the unit of measure recorded in Box 2).

7. Determine how many minus package errors are permitted to exceed the MAV (errors known as unreasonable minus errors ~~[UMEs]~~), see Column 4 in either Table 2-1. "Sampling Plans for Category A" or Table 2-2. "Sampling Plans for Category B" (refer to Appendix A). Record this number in Box 8.

(Amended 20XX)

2.3.5. Procedures for Determining Tare

There are three types of tare for the inspection of packaged goods. The tare weight may vary considerably from package to package as compared with the variability of the package net contents, even for packages in the same production lot. The basic test procedure in this handbook considers the variation for all tare materials.

a. Used Dry Tare

Used Dry Tare is **the** used tare material that has been air dried, or dried in some manner to simulate the unused tare weight. It includes all packaging materials that can be separated from the packaged product, either readily (e.g., by shaking) or by washing, scraping, ambient air drying, or other techniques involving more than "normal" household recovery procedures, but not including laboratory procedures ~~like~~ **such as** oven drying. Labels, wire closures, **ties,** staples, prizes, decorations, and such are considered tare. Used Dry Tare is available regardless of where the packages are tested. The net content verification procedures described in this handbook reference Used Dry Tare.

Note: When testing frozen foods with Used Dry Tare, the frost found inside frozen food packages is included as part of the net contents, except in instances in which glazed or frozen foods are tested according to Section 2.6. "Net Weight of Encased-in-Ice and Ice Glazed Products."

b. Unused Dry Tare

Unused Dry Tare is all unused packaging materials (including glue, labels, **wire closures,** ties, etc.) that contain or enclose a product. It includes prizes, gifts, coupons, or decorations that are not part of the product. If testing

packages in retail store locations where they are packaged and sold in small quantities to the ultimate consumers, the basic test procedure may be modified by using samples of the packaging material available in the store.

c. Wet Tare

Wet Tare is **the** used tare material where no effort is made to dry the tare material. Free-flowing liquids are considered part of the tare weight.

Wet tare procedures must not be used to verify the labeled net weight of packages of meat and poultry packed at an official United States Department of Agriculture (USDA) facility and bearing a USDA seal of inspection. The USDA Food Safety and Inspection Service (FSIS) adopted specific sections of the 2005 4th Edition of NIST Handbook 133 by reference in 2008, but not the "wet tare" method for determining net weight compliance. FSIS considers the free-flowing liquids in packages of meat and poultry products, including single-ingredient, raw poultry products, to be integral components of these products (see Federal Register, September 9, 2008 [Volume 73, Number 175] [Final Rule – pages 52189-52193]).

If the jurisdiction uses wet tare to determine net weight, follow the procedures described below that reference Used Dry Tare, except make no effort to dry the tare material. If Wet Tare is used to verify the net weight of the packages, the inspector must allow for moisture loss.

(Amended 2010 **& 20XX)**

2.3.6.1 Determine Nominal Gross Weight

A nominal gross weight is used to calculate package errors. To compute the nominal gross weight, add the average tare weight (recorded in Box 13) to the labeled weight (recorded in Box 1), **and subtract the tare correction (Box 13a), if applicable.** Record in Box 14.

The nominal gross weight is represented by the formula:

Nominal gross-weight = average tare weight + ~~l~~abeled weight ***– Tare Correction***

(Amended 20XX)

2.3.6.2. Determine Package Error

To obtain the package error, subtract the nominal gross weight from each package's gross weight. The package error is represented ~~by the~~ **in** formula:

Package error = gross weight −~~-~~nominal gross weight

(Added 2010)

Determine the errors of the packages opened for tare by subtracting the nominal gross weight recorded in Box 14 from the individual package gross weights recorded for each package (Pkg. 1, Pkg. 2, etc.) in Block a, "Gross Wt." The nominal gross weight must be used, rather than the actual net weight, for each package to determine the package error. This ensures that the same average tare weight is used to determine the error for every package in the sample, not just the unopened packages.

Standard Packages. – Record the package error in the appropriate plus or minus column on the report form for each package opened for tare.

Random Packages. – Determine the package error for the tare sample using a nominal gross weight for each package so that all of the package errors are determined with the same tare weight value. Record the package error on the Random Package Report Form in the appropriate plus or minus column under Package Errors.

Note: Converting the package error to dimensionless units allows the inspector to record the package errors as whole numbers disregarding decimal points and zeroes in front and unit of measure after the number. This section does not prohibit the use of software or units of weight instead of dimensionless units.

Example:
If weighing in 0.001 lb increments, the unit of measure is 0.001 lb. If the package error for the first package opened for tare is + 0.008 lb, instead of recording 0.008 lb in the plus column, record the error as "8" in the plus column. If the second package error is + 0.060 lb, record the package error as "60" in the plus column, and so on.

Determine the errors for the rest of the sample by subtracting the nominal gross weight (Box 14) from the gross weight of each of the unopened sample packages. Record the package errors in the "Package Errors" section of the report form using either units of weight (lb or g) or dimensionless units.

(Amended 20XX)

2.3.7. Evaluate for Compliance

This inspection lot will pass or fail based on the sample test results. The following steps ~~lead~~ **guide** the inspector through the process to determine if a sample passes or fails. If the product is subject **to** a moisture allowance, follow the procedures under Section 2.3.8. "Moisture Allowances" to correct the MAV.

(Amended 20XX)

2.3.7.2. Average Requirement

1. Determine the average error by dividing the total error recorded in Box 15 by the sample size recorded in Box 6. Record the average error in Box 18 if using dimensionless units or in Box 19 if using units of weight.

2. Compute the average error in terms of weight (if working in dimensionless units up to this time) by multiplying the average error in dimensionless units by the unit of measure and record the value in Box 19. If the average error is positive, the sample passes the average requirement. If the average error is negative, the sample fails under a "Category B" test. Record in Box 20.

Note: If the total error recorded in Box 15 is a plus value, and Box 17 is "No" (the number of unreasonable errors is equal to or less than the number allowed, recorded in Box 8), the lot passes.

(Refer to Section 1.4.1. Net Quantity of Contents Requirements for Pesticides Labeled with Minimum Net Quantity of Contents Declarations.")

5. If the average error is a negative value when testing under the Sampling Plans for "Category A," compute the Sample Error Limit (SEL) as follows:

   - Compute the Sample Standard Deviation and record it in Box 21.

$$s = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(x_i - \bar{x})^2}$$

   - Obtain the Sample Correction Factor from Column 3 of Appendix A. Table 21. "Sampling Plans for Category A" test. Record this value in Box 22.

- Compute the Sample Error Limit using the formula:

Sample Error Limit (Box 23) =
Sample Standard Deviation (Box 21) × Sample Correction Factor (Box 22)

6. Compliance Evaluation of the Average Error:

- If the value of the Average Error (Box 18) is smaller than the Sample Error Limit (Box 23), the sample passes.

- If the value of the Average Error (disregarding the sign) (Box 18) is larger than the Sample Error Limit (Box 23), the sample fails. However, if the product is subject to moisture loss, the sample does not necessarily fail. Follow the procedures **in** ~~under~~ "**2.3.8.** Moisture Allowances" in this chapter.

(Amended 2018**,** ~~and~~ 2022 **& 20XX**)

2.3.8.1. Applying Moisture Loss before Determining Package Errors

1. Determine the percent value of the moisture allowance if the product is listed below. (see Table 2-3. "Moisture Allowances.")

Table 2-3.
Moisture Allowances

Verifying the labeled net weight of packages of:	Moisture Allowance is:	Notes
Flour	3 %	
Dry pet food	3 %	Dry pet food means all extruded dog and cat foods and baked treats packaged in Kraft paper bags and/or cardboard boxes with a moisture content of 13 % or less at time of pack.
Pasta products	3 %	Pasta products means all macaroni, noodle, and like products packaged in kraft paper bags, paperboard cartons, and/or flexible plastic bags with a moisture content of 13 % or less at the time of pack.
Borax	see Section 2.4. Borax	
Cannabis	3 %	*Cannabis* means plant material only, and not products containing *Cannabis*, whether containing more than 0.3 % Total Delta-9 THC (also known as cannabis, Marijuana, or Marihuana) or containing 0.3 % or less Total Delta-9 THC (also known as Hemp).
Wet Tare Only[1]		
Fresh poultry	3 %	Fresh poultry is defined as poultry above a temperature of − 3 °C (26 °F) that yields or gives when pushed with the thumb.
Franks or hot dogs	2.5 %	

Table 2-3. Moisture Allowances		
Bacon, fresh sausage, and luncheon meats	0 %	For packages of bacon, fresh sausage, and luncheon meats, there is no moisture allowance if there is no free-flowing liquid or absorbent material in contact with the product and the package is cleaned of clinging material. Luncheon meats are any cooked sausage product, loaves, jellied products, cured products, and any sliced sandwich-style meat. This does not include whole hams, briskets, roasts, turkeys, or chickens requiring further preparation to be made into ready-to-eat sliced product. When there is no free-flowing liquid inside the package and there are no absorbent materials in contact with the product, Wet Tare and Used Dried Tare are equivalent.
[1] Wet tare procedures must not be used to verify the labeled net weight of packages of meat and poultry packed at an official United States Department of Agriculture (USDA) facility and bearing a USDA seal of inspection. The Food Safety and Inspection Service (FSIS) adopted specific sections of the 2005 4th edition of NIST Handbook 133 by reference in 2008 but not the "Wet Tare" method for determining net weight compliance. FSIS considers the free-flowing liquids in packages of meat and poultry products, including single-ingredient, raw poultry products, to be integral components of these products (see Federal Register, September 9, 2008 [Volume 73, Number 175] [Final Rule – pages 52189-52193]).		
Notes: (1) There is no moisture allowance when inspecting meat and poultry from a USDA inspected plant when Used Dry Tare and "Category A" sampling plans are used. (2) For the Wet Tare Only section of Table 2-3. "Moisture Allowances," free-flowing liquid and liquid absorbed by packaging materials in contact with the product are part of the wet tare. (Note Added 2010)		

(Amended 2010, 2013, and 2024)

2. To compute moisture allowance, multiply the labeled quantity by the decimal percent value of the allowance. Record this value in Box 13a.

Example:
Labeled net quantity of flour is 907 g (2 lb)
Moisture Allowance is 3 % (0.03)
Moisture Allowance = 907 g (2 lb) × 0.03 = 27 g (0.06 lb)

3. If the Moisture Allowance is known in advance (e.g., **Table 2-3. Moisture Allowances** ~~flour, pasta products, and dry pet food~~), it can be applied by adjusting the Nominal Gross Weight used to determine the sample package errors. The Moisture Allowance in Box 13a is subtracted from the Nominal Gross Weight to obtain an Adjusted Nominal Gross Weight which is entered in Box 14. The Nominal Gross Weight is defined in Section 2.3.6.1. ~~as the sum of the Labeled Weight and the Average Tare Weight from Box 13.~~

Adjusted Nominal Gross Weight =
= (Labeled Quantity + Average Tare Weight)
- Moisture Allowance

Example:
Use a Labeled Weight of 907 g (2 lb) and an
Average Tare Weight of 14 g (0.03 lb), ***and a 3% (0.03) Moisture Allowance of 27 g (0.06 lb)***

Adjusted Nominal Gross Weight = ([907 g (2 lb) + 14 g (0.03 lb) = 921 g (2.03 lb)]) – 27 g (0.06 lb) = 894 g (1.97 lb)

~~*The calculation is:*~~

~~*Labeled Net Quantity 907 g (2 lb) + Average Tare Weight 14 g (0.03 lb) = 921 g (2.03 lb) – Moisture Allowance 27 g (0.06 lb) = Adjusted Nominal Gross Weight of 894 g (1.97 lb)*~~

This result is entered in Box 14.

4. Determine package errors by subtracting the Adjusted Nominal Gross Weight from the Gross Weights of the Sample Packages.

Example:
~~The calculation is~~ **Compute the Package Error by using the formula**:
Package Error = *Gross Weight of the Sample Packages – Adjusted Nominal Gross Weight* ~~*= Package Error*~~

Note: When the Nominal Gross Weight is adjusted by subtracting the Moisture Allowance value(s) the Maximum Allowable Variation(s) is not changed. This is because the errors that will be found in the sample packages have been adjusted by subtracting the Moisture Allowance (e.g., 3 %) from the Nominal Gross Weight. That increases the individual package errors by the amount of the moisture allowance (e.g., 3 %). If the value(s) of the MAV(s) were also adjusted it would result in doubling the allowance. MAV is always based on the labeled net quantity.

(Added 2010)

2.3.8.2. Applying Moisture Allowance after Determining Package Errors

Adjustments can be made when the value of the Moisture Allowance is determined following the test (e.g., after the sample fails or if a packer provides reasonable moisture allowance based on data obtained using a scientific method) using the following approach:

If the sample fails the Average Requirement but has no unreasonable package errors, only Step 1 is used. If the sample passes the Average Requirement but fails because the sample included one or more Unreasonable Minus Errors, only Step 2 is used.

If the sample fails the Average and MAV Requirements, both of the following steps are applied.

1. Use the following approach to apply a Moisture Allowance to the Average Requirement after the test is completed:
   - the Moisture Allowance is computed;

Example :
3 % × 907 g (2 lb) = 27 g (0.06 lb)

   - added to the Sample Error Limit;

Example:
If the Sample Error Limit is 0.023, add 0.06 to obtain an Adjusted Sample Error Limit of 0.083)

   - the Adjusted Sample Error Limit is then compared to the Average Error of the Sample; and

- if the average error (disregarding sign) in Box 18 is smaller than the Adjusted Sample Error Limit, the sample passes.

HOWEVER,

- if the average error (disregarding sign) in Box 18 is larger than the Adjusted Sample Error Limit, the sample fails.

2. To apply Moisture Allowance to the MAV(s) after the test, the following method is recommended:
   - compute Moisture Allowance;

Example :
3 % × 907 g (2 lb) = 27 g (0.06 lb)

   - add to **the** MAV for labeled net quantity of the package to get **the** Adjusted ~~Maximum Allowable Variations~~**MAV(s)**;

Example:
MAV for 907 g (2 lb) is 31.7 g (0.07 lb) + 27 g (0.06 lb) =
*Adjusted ~~Maximum Allowable Variation~~**MAV**(s) of 58.7 g (0.13 lb)*

   - compare each minus package error to the Adjusted MAV;
   - mark package errors that exceed the Adjusted MAV and record the number of unreasonable minus errors found in the sample; and
   - if this number exceeds the number of unreasonable errors allowed, the sample fails.

(Added 2010 **& Amended 20XX)**

2.3.8.3. Moisture Allowance Gray Area

When the average error of a lot of fresh poultry, franks/hot dogs, or pasta products is minus but does not exceed the established "moisture allowance" or "gray area," contact the packer or plant management personnel to determine what information is available on the lot in question. Questions to the plant management representative may include:

- Is a quality control program in place?
- What information is available concerning the lot in question?
- If net weight checks were completed, what were the results of those checks?
- What adjustments, if any, were made to the target weight?

Note: If the plant management has data on the lot, such data may help to substantiate that the "lot" had met the net content requirements at the point of manufacture.

This handbook provides "moisture allowances" for some **products (Table 2.3. Moisture Allowances)**~~meat and poultry products, flour, pasta products, and dry pet food.~~ These allowances are based on the premise that when the average net weight of a sample is found to be less than the labeled weight, but not by an amount that exceeds the allowable limit, either the lot is declared to be within the moisture allowance or further investigation can be conducted.

Reasonable variations from net quantity of contents caused by the loss or gain of moisture from the package are permitted when caused by ordinary and customary exposure to conditions that occur under good

distribution practices. If evidence is obtained and documented to prove that the lot was shipped from the packaging plant in a short-weight condition or was distributed under inappropriate or damaging distribution practices, appropriate enforcement action should be taken.

(Amended 2010, ~~and~~ 2013 **& 20XX)**

2.4.1. Test Equipment

- Dry measure with a capacity of 550.6 mL or (1 dry pt), 1 101 mL (dry quart), 1 000 mL (liter)
- Metal funnel with slide-gate and stand
- A scale that meets the requirements in Chapter 2, Section 2.2. "Measurement Standards and Test Equipment."
- Straightedge or Ruler
- Safety glasses
- Gloves
- Dust mask
- Level (at least 15 cm [6 in] in length)
- Pan or drop cloth/polyethylene sheeting for catching overflow of dry measure
- Borax Audit Worksheet **(see Appendix C. "Model Inspection Report Forms")**

(Amended 2016 **& 20XX**)

2.5.1 Test Equipment

Scales and ~~weights~~ **(mass standards)** recommended in Section 2.2. "Measurement Standards and Test Equipment" are suitable for the determination of drained weight.

Sieves

- For drained weight of 1.36 kg (3 lb) or less, one 203 mm (8 in) No. 8 mesh U.S. Standard Series sieve, receiving pan, and cover;
- For drained weight greater than 1.36 kg (3 lb), one 304 mm (12 in) sieve, with same specifications as above;
- For canned tomatoes, a U.S. Standard test sieve with 11.2 mm ($^{7}/_{16}$ in) openings must be used.

Note: The sieve is used, if it is necessary, to determine the percentage of solids in the container.

- Stopwatch. **See Section 2.2.5 "Other Test Equipment Requirements"**

(Amended 2010 **& 20XX**)

2.6.1.1. Test Equipment

- **Scale** ~~Balance~~ and ~~weights~~**mass standards** (used to verify accuracy) **per 2.2 "Measurement Standards and Test Equipment".**
- Partial immersion thermometer or equivalent with 1 °C (2 °F) graduations and a - 35 °C to + 50 °C (- 30 °F to + 120 °F) **range**, accurate to ± 1 °C (± 2 °F) **see Section 2.2.5 "Other Test Equipment Requirements".**

- Water source and hose with an approximate flow rate of 4 L to 15 L (1 gal to 4 gal) per minute for thawing blocks and other products

- Sink or other receptacle [i.e., bucket with a capacity of approximately 15 L (4 gal)] for thawing blocks and other products

- A wire mesh basket (e.g., used for testing large frozen blocks of shrimp) or a container that is large enough to hold the contents of one package (e.g., 2.27 kg or [5 lb] box of shrimp) and has openings small enough to retain all pieces of the product (e.g., an expanded metal test tube basket lined with standard 16-mesh screen)

- Number 8 mesh, 203 mm (8 in) or 304 mm (12 in) sieve

- Means to determine a 30° angle

- Pan for weighing the thawed and drained product

- Stopwatch**. (see Section 2.2.5 "Other Test Equipment Requirements")**

- Ice Glazed Package Worksheet (see Appendix C. "Model Inspection Report Forms"

- Ice Glazed Package Report (see Appendix C. "Model Inspection Report Forms")

(Amended 20XX)

2.6.1.2. Test Procedure for Encased-in-Ice Product Only

1. Follow Sections 2.3.1. through 2.3.4. to define the inspection lot, select a sampling plan and select a random sample.

2. Place the unwrapped frozen seafood, meat, poultry, or similar products in the wire mesh basket or an open container to thaw (e.g., it is not placed in a plastic bag) and immerse in a 15 L (4 gal) or larger container of fresh water at a temperature between 23 °C ~~to~~**and** 29 °C (75 °F ~~to~~**and** 85 °F). Submerge the basket so that the top of the basket extends above the water level.

3. Maintain a continuous flow of water into the bottom of the container to keep the temperature within the specified range. This is accomplished by maintaining a constant flow of warm water into the container holding the product (e.g., place a bucket in a sink to catch the overflow, and feed warm water into the bottom of the bucket through a hose).

Note: Direct immersion does not result in the product absorbing moisture because the freezing process causes the tissue to lose its ability to hold water.

4. As soon as the product thaws, determined by loss of rigidity, transfer all material to a sieve (203 mm [8 in] for packages 453 g [1 lb] or less). A sieve 304 mm [12 in] for packages weighing more than 453 g [1 lb]) and distribute it evenly over the sieve.

5. Without shifting the product, incline the sieve 30° from the horizontal position to facilitate drainage, and drain for two minutes **using a stopwatch.**

6. While the product is draining, place pan on scale and tare the scale reading to zero.

7. At the end of the drain time, immediately transfer the product to the tared pan for weighing to determine the net weight of the product.

(Amended 2010 **& 20XX**)

2.6.2.1. Test Equipment

- **Scale** ~~Balance~~ and ~~weights~~**mass standards** (used to verify accuracy), **see 2.2 "Measurement Standards and Test Equipment".**
- Continuous cold water source
- Number 8 sieve and receiving pan, 203 mm (8 in) for packages 453 g (1 lb) or less. A 304 mm (12 in) **sieve** for packages more than 453 g (1 lb).
- Means to determine a 17° to 20° angle
- Stopwatch. **(see Section 2.2.5 "Other Test Equipment Requirements")**

(Amended 20XX)

2.7.1 Test Equipment

- Scale ~~or balance~~ and mass standards (The standards are used to verify the accuracy and repeatability of the weighing device.) **See 2.2 "Measurement Standards and Test Equipment."**
- Partial immersion thermometer or equivalent with 1 °C (2 °F) graduations and a - 35 °C to + 50 °C (- 30 °F to + 120 °F) **range,** accurate to ± 1 °C (± 2 °F) **see Section 2.2.5 "Other Test Equipment Requirements".**
- Sink (e.g., water bath, ice chest) or other receptacle of suitable size to hold the packages for thawing, water source, and hose with fresh water that can be maintained at a temperature between 23 °C to 29 °C (75 °F to 85 °F). (Used for thawing plastic bags or buckets of chitterlings.)
- An alternative thawing procedure for packages requires access to a refrigerator that must be available for storing sample packages for several days to thaw.
- Stainless Steel Sieve(s) and Drain Pan(s) with number 8 mesh, 203 mm (8 in) or 304 mm (12 in) (The use is based on the labeled net weight of the package under inspection.)
- Chitterlings Worksheet for Category A and Category B (see Appendix C**.** "Model Inspection Report Forms.")
- Stopwatch (to measure drain periods), **see Section 2.2.5. "Other Test Equipment Requirements.**
- Knife or box cutter (to open packages).
- Waterproof marking pen (for numbering the packages).

- Disposable non-latex gloves.
- Paper towels (drying sieve drain pan, packages and work area).
- Large plastic bags (to hold product emptied from packages).
- Plastic rod (to insert into buckets of chitterlings to determine if the product is thawed and to ensure there are no chunks of ice remaining).

(Added 2015 **& Amended 20XX)**

The submitter requested that this be a Voting Item in 2027.

Previous Status:
2027: New Proposal

Original Justification:
NIST OWM is reviewing and making editorial changes to NIST Handbooks to ensure compliance with NIST Library Publication Standards and HTML Formatting requirements. This ongoing project is necessary and a required enhancement to the transition from the printed publication to an electronic/digital one. During this endeavor, OWM has identified several sections within NIST Handbook 133 that may encroach on the editorial boundary, including outdated language, references to test equipment, and other updates that we believe need to be presented to the NCWM for consideration.

Possible Opposing Arguments: Questions as to why these changes are necessary.

Comments in Favor:

Regulatory:
•

Industry:
•

Advisory:
•

Comments Against:

Regulatory:
•

Industry:
•

Advisory:
•

Neutral Comments:

Regulatory:
•

Industry:

-

Advisory:

-

Item Development:
New Proposal in 2027

Regional Associations' Comments:
New Proposal in 2027

CWMA 2026 Interim Meeting:

One regulator asked for editorial review, i.e. the use of see vs. per, underlining, and capitalization in the added text.

The committee recommends a voting status.

WWMA 2026 Annual Meeting:

Mr. John McGuire (NIST OWM) stated that NET-27.3 and NET-27.4 are the results from NIST OWM reviewing NIST Handbook 130 and 133 to advance them into HTML electronic publication. These changes do not change the content in the model law; however, the review of the editorial changes should be brought to the body for consideration. Mr. McGuire recommended a VOTING status.

Mr. Matthew Douglas (L&R Committee Chair) asked if these edits will contradict; between the two handbooks and the additional documents that were submitted to WWMA.

Mr. John McGuire (NIST OWM) reaffirmed that the changes are to adapt the handbooks to the NIST library standard for HTML formatting and will include live links and structural changes. The structural change is in the labeling of titles to help users navigate the table of contents as well as SI incorporations. Mr. McGuire noted that the documents submitted are different but will not be contradictory because they address different items.

Mr. Kurt Floren (County of Los Angeles, California) agrees with the proposal and notes that if NET-25.1 moves forward, then the formatting will also need to be updated simultaneously to stay consistent.

Mr. John McGuire (NIST OWM) acknowledged Mr. Floren's concern and noted that NIST is aware that if the items move forward to voting, then those changes will have to be incorporated to reflect the new format as well.

Mr. Mahesh Albuquerque (Colorado Division of Oil and Public Safety) supported NET-27.3 and NET-27.4 with the editorial changes and recommended a VOTING status.

Mr. Kevin Schnepp (California Division of Measurement Standards) supported this item and recommended a VOTING status.

Based on the comments heard during open hearings the WWMA L&R Committee recommends a VOTING status for this item.

NEWMA 2026 Interim Meeting:

A Regulator from NJ concurs with NIST reformatting and recommends Voting status.

NIST OWM stated Chap 2 and 3 are additional that NIST found with changes to switch from HB133 to HTML and library standards. Can be found in the supporting docs of items that will occur in the 2027 HB. Happy to hear that NJ stands in support with the Voting item.

The committee recommends a voting status.

SWMA 2026 Annual Meeting:

Submitter recommends voting status.

Tory Brewer representing the state of West Virgina speaking on behalf of the Moisture Allowance Task group commented that pending the outcome of the items in Block 4 and NIST approach on accepting the editorial changes if BLOCK 4 is approved by the body. Until Mr. Brewer receives NISTs position on these changes he is recommending a developing status.

Alison Wilkinson representing the state of Maryland is neutral on this item and recommends developing status.

Whitney Corley representing the state of Louisiana commented the following:

We have concern with the proposal to replace the word "certified" with "traceable" because I believe that using "traceable" would unintentionally introduce a loophole that the mass standards used would not need to meet any sort of applicable maximum permissible error as traceability is an assigned value and uncertainty traceable to the SI only, and it does not ensure compliance with any sort of specification. I believe traceability is implied with a word such as "certified" or "verified" whereas certification or verification to any sort of specification or tolerance is not implied with "traceability." Recommends developing status.

Brain Terry representing the state of Arkansas supports this item and recommends voting status.

SWMA Laws and Regulations committee recommends this item to be given developing status.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

NET-27.4 NIST Handbook 133, Chapter 3 Reformatting

Source:
NIST Office of Weights and Measures

Purpose:
Update Handbook 133 to NIST Library Standards and HTML Formatting requirements. These requirements are necessary to transition from the printed publication to an electronic/digital one.

Item under Consideration:
Amend NIST Handbook 133, Chapter 3 as follows:

Chapter 3. Test Procedures – For Packages Labeled by Volume

3.1. Scope

Use these procedures to determine the net contents of packaged goods labeled in fluid volume, such as milk, water, beer, oil, paint, distilled spirits, soft drinks, juices, liquid cleaning supplies, or chemicals. This chapter also includes procedures for testing the capacities of containers such as paper cups, bowls, glass tumblers, and stemware. **Also in this chapter are procedures for net content of package goods of peat moss, mulch, soil, ice cream, frozen novelties, oysters, compressed gas containers, firewood, and animal bedding labeled by volume.**

These procedures do not address all the safety issues users need to be aware of to carry out the tasks. Some specific test methods involve unique safety hazards. When performing these tests, always refer to OSHA or industry safety best practices guidance.

These procedures do not cover berry baskets and rigid-dry measures that are covered by specific code requirements in NIST Handbook 44 "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices."

If Multiunit or Variety Packages are to be inspected, refer to Chapter 5. "Specialized Test Procedures" for guidance in testing. If a total quantity declaration is being verified and the **Maximum Allowable Variation (**MAV**)** to be applied is not based on a percentage of the labeled quantity, refer to Section 1.2.4.1. "Total Quantity MAV for Multiunit and Variety Packages."

(Note Added 2022 & **Amended 20XX)**

3.1.1. Test Methods

The gravimetric procedure **in Section 3.2. "Gravimetric Test Procedure for Non-Viscous Liquids"** may be used to verify the net quantity of contents of packages labeled in volume when the density (density means the weight of a specific volume of liquid determined at a reference temperature) of the product being tested does not vary excessively from one package to another.

If the density varies from one package to another, test each package using the volumetric test procedures described in this chapter. Special test methods are required for a number of unique products so care should be taken to select the correct test procedure.

Reference Temperature:

In addition to possible package-to-package variations in product density, the temperature of the liquid will affect the volume. The product will expand or contract based on a rise or fall in product temperature.

Example:
The volume of a liquid cleaning product might be 5 L (1.32 gal) at 20 °C (68 °F) and 5.12 L (1.35 gal) at 25 °C (77 °F), which represents a 2.2 % change in volume.

Notes:

1. This extreme example is for illustrative purposes. A 2.2 % volume change will not occur in normal testing.

Use the reference temperature specified in Table 3-1. "Reference Temperatures for Liquids" to determine volume. When checking liquid products labeled by volume using the gravimetric procedure, maintain the packages used to determine product densities at reference temperatures. If testing the packages in a sample volumetrically, each package in the sample must be maintained at or corrected to the reference temperature when its volume is determined.

2. When checking liquid products using a volumetric ~~or gravimetric~~ procedure, **or when determining the density of samples using the gravimetric procedure,** the temperature of the samples must be maintained at the reference temperature ± 2 °C (± 5 °F).

Table 3-1. Reference Temperatures for Liquids		
If the liquid commodity is:	**Volume is determined at the reference temperature of:**	**Code of Federal Regulation (CFR) Reference***
Malt (Beer)	4 °C (39.1 °F)	27 CFR 7.10
Distilled Spirits	15.56 °C (60 °F)	27 CFR 5.11
Frozen food - sold and consumed in the frozen state	At the frozen temperature	21 CFR 101.7(b)(2)(i)
Petroleum	15.6 °C (60 °F)	16 CFR 500.8(b)
Refrigerated food (e.g., milk and other dairy products labeled "KEEP REFRIGERATED")	4 °C (40 °F)	21 CFR 101.7(b)(2)(ii)
Other liquids and wine (e.g., includes liquids sold in a refrigerated state for immediate customer consumption such as soft-drinks, bottled water and others that do not require refrigeration)	20 °C (68 °F)	Food: 21 CFR 101.7(b)(2)(iii) Non-Food: 16 CFR 500.8(b) Wine: 27 CFR 4.10 (b)
*The Code of Federal Regulations (CFR) can be accessed online at: **www.ecfr.gov or www.govinfo.gov/app/collection/cfr.**		

(Amended 2010 **& 20XX)**

3.2. Gravimetric Test Procedure for Non-Viscous Liquids

3.2.1. Test Equipment

- A scale that meets the requirements in Chapter 2, Section 2.2. "Measurement Standards and Test Equipment."
- **Other measurement standards and test equipment should meet the requirements in Chapter 2, Section 2.2.5. "Other Test Equipment Requirements".**

Note: To verify that the scale has adequate resolution for use, it is first necessary to determine the density of the liquid; next verify that the scale division is no larger than MAV/6 for the package size under test. The smallest graduation on the scale must not exceed the weight value for MAV/6 (see Example for Determining Scale Suitability).

Example:
Assume the inspector is using a scale with 1 g (0.002 lb) increments to test packages labeled 1 L (33.8 fl oz) that have an MAV of 29 mL (1 fl oz). Also, assume the inspector finds that the weight of 1 L of the liquid is 943 g (2.078 lb). This will result in an MAV/6 value in weight of 4.557 g (0.010 lb).

Example for Determining Scale Suitability (based on the example above)		
1. *Determine the MAV based on the labeled quantity.*	*MAV: 29 mL*	*MAV: 1 fl oz*
2. *Determine the density of the liquid.*	*Density: 1 Liter = 943 g ÷ 1000 mL = 0.943 g/mL*	*Density: 33.8 fl oz = 2.07 8 lb ÷ 33.8 fl oz = 0.061 4 lb/fl oz*
3. *Convert the MAV from volume to weight by multiplying the (volume) MAV by the density factor (step 2). Divide this result by 6 (MAV/6) and compare it to the scale division.*	*MAV in Volume Converted to Weight Divided by 6.* *29 mL × 0.943 g/mL ÷ 6 = 4.557 g**	*MAV in Volume Converted to Weight Divided by 6.* *1 fl oz × 0.061 4 lb/fl oz ÷ 6 = 0.010 lb*
**In this example, the 1 g (0.002 lb) scale division is smaller than the MAV/6 value of 4.557 g (0.010 lb) so the scale is suitable for making a density determination.*		

- Partial immersion thermometer or equivalent with 1 °C (2 °F) graduations and a − 35 °C to + 50 °C (− 30 °F to + 120 °F) **range**, accurate to ± 1 °C (± 2 °F) **see Chapter 2, Section 2.2.5 "Other Test Equipment Reguirements"**.
- Volumetric **standards** ~~measures~~ **(used to verify accuracy) per Chapter 2, Section 2.2.5 "Other Test Equipment Requirements".**

Note: When checking packages labeled in SI units, flask sizes of 100 mL, 200 mL, 500 mL, 1 L, 2 L, 4 L, and 5 L and a 50 mL cylindrical graduate with 1 mL divisions may be used. When checking packages labeled in U.S. customary units the use of measuring flasks and graduates with capacities of ~~gill, half-pint, pint, quart, half-gallon, gallon, and a 2 fl oz cylindrical graduate, graduated to $^1/_2$ fl dr~~ **1 gi, 0.5 pt, 1 pt, 1 qt, 0.5 gal, 1 gal, and a 2 fl oz cylindrical graduate, graduated to 0.5 fl dr** is recommended.

- Defoaming agents may be necessary for testing liquids such as beer and soft drinks that effervesce or are carbonated. Two such products are Hexanol or Octanol (Capryl Alcohol).
- ~~Bubble~~ **L**~~l~~evel at least 152 mm (6 in) in length
- Stopwatch **per Chapter 2, Section 2.2.5. "Other Test Equipment Requirements."**

(Amended 20XX)

3.2.2. Test Procedure

1. Follow Section 2.3.1. "Define the Inspection Lot." Use a "Category A" sampling plan in the inspection. Select a random sample.

2. Bring the sample packages and their contents to the reference temperature as specified in Table 3-1. "Reference Temperatures for Liquids." To determine if the liquid is at its reference temperature, immerse the thermometer in the liquid before starting the test. Verify the temperature again immediately after the flask and liquid is weighed. If the product requires mixing for uniformity, mix it before opening in accordance with any instructions specified on the package label. **Often, less air is entrapped if the package is gently rolled to mix the contents.** Shaking liquids, such as flavored milk, often entraps air that will affect volume measurements, so use caution when testing these products. ~~Often, less air is entrapped if the package is gently rolled to mix the contents.~~

3. For milk, select a volumetric measure equal to or one size smaller than the label declaration. For all other products, select a volumetric measure that is one size smaller than the label declaration.

(Amended 2004)

Example:
If testing a 1 L bottle of juice or a soft drink, select a 500 mL volumetric measure.

Note: When determining the density of milk, if the product from the first container does not fill the volumetric measure to the nominal capacity graduation, product may be added from another container as long as product integrity is maintained (i.e., brand, identity, lot code, and temperature).

4. Prepare a clean volumetric measure to use according to the following procedure:

- Because flasks are ordinarily calibrated on a "to deliver" basis, they must be "wet down" before using. Immediately before use, fill the volumetric flask(s) or graduate with water. The water should be at the reference temperature of the product being tested. Fill the flask(s) with water to a point slightly below the top graduation on the neck. The flask should be emptied in 30 seconds (± 5 seconds). Tilt the flask gradually so the flask walls are splashed as little as possible as the flask is emptied. When the main flow stops, the flask should be nearly inverted **(held at a 10 ° to 15 ° angle from vertical)**. Hold the flask in this position for 10 seconds more and touch off the drop of water that adheres to the tip. If necessary, dry the outside of the flask. This is called the "wet down" condition. The flask or graduate is then ready to fill with liquid from a package.

Note: When using a volumetric measure that is calibrated "to contain," the measure must be dry before each measurement. **See NIST Handbook 105-2 section 3 "Terminology" for markings placed by the manufacturer to identify the type of volumetric measure.**

- If the liquid effervesces or foams when opened or poured (such as carbonated beverages), add two drops of a defoaming agent to the bottom of the flask before filling with the liquid. If working with a carbonated beverage, make all density determinations immediately upon placing the product into the standard. This reduces the chance of volume changes occurring from the loss of carbonization.

5. If the flask capacity is equal to the labeled volume, pour the liquid into the volumetric measure tilting the package to a nearly vertical position. If the flask capacity is smaller than the package's labeled volume, fill the flask to its nominal capacity graduation.

6. **Read the flask meniscus according to the following procedure:** Position the flask on a level surface at eye level. For clear liquids, place a material of some dark color outside the flask immediately below the level of the meniscus. Read the volume from the lowest point of the meniscus. For opaque liquids, read volume from the center top rim of the liquid surface.

7. Evaluate the density variation.

- Select a volumetric measure equal to or one size smaller than the labeled volume (depending on the product) and prepare it as described in Step 4 of this section. Then determine and record its empty weight.

- Determine acceptability of the liquid density variation, using two packages as follows:
  - Determine the gross weight of the first package.
  - Pour the liquid from the first package into a flask. Measure exactly to the nominal capacity marked on the neck of the measure.
  - Weigh the filled flask and subtract its empty weight to obtain the weight of the liquid.
  - Determine density by dividing the weight of the liquid by the capacity of the flask.
  - Determine the weight of the liquid from a second package using the same procedure.
  - If the difference between the densities of the two packages exceeds one division, use the volumetric procedure in Section 3.3. "Volumetric Test Procedure for Non-Viscous Liquids."

8. Determine the Average Used Dry Tare Weight of the sample according to provisions of Section 2.3.5. "Procedures for Determining Tare."

9. Calculate the Average Product Density by adding the densities of the liquid from the two packages and dividing the sum by two.

10. Calculate the "nominal gross weight" using the following formula if the flask capacity is equal to the labeled volume:

Nominal Gross Weight = (Average Product Density [in weight units]) + (Average Used Dry Tare Weight)

Note: If the flask size is smaller than the labeled volume, the following formula is used:

Nominal Gross Weight = (Average Product Density × [Labeled Volume/Flask Capacity]) + (Average Used Dry Tare Weight)

11. Weigh the remaining packages in the sample.

12. Subtract the nominal gross weight from the gross weight of each package to obtain package errors in terms of weight. All sample packages are compared to the nominal gross weight.

13. To convert the average error or package error from weight to volume, use the following formula:

Package Error in Volume = Package Error in Weight ÷ Average Product Density Per Volume Unit of Measure.

(Amended 20XX)

3.3.1. Test Equipment

- Partial immersion thermometer or equivalent with 1 °C (2 °F) graduations and a − 35 °C to + 50 °C (− 30 °F to + 120 °F) **range**, accurate to ± 1 °C (± 2 °F) **see Chapter 2, Section 2.2.5. "Other Test Equipment Requirement".**
- Volumetric ~~measures~~ **standards (used to verify accuracy) per Chapter 2, Section 2.2.5 "Other Test Equipment Requirements".**

Note: When checking packages labeled in SI units, flask sizes of 100 mL, 200 mL, 500 mL, 1 L, 2 L, 4 L, and 5 L and a 50 mL cylindrical graduate with 1 mL divisions may be used. When checking packages labeled in U.S. customary units the use of measuring flasks and graduates with capacities of ~~gill, half-pint, pint, quart, half-gallon, gallon, and a 2-fl oz cylindrical graduate, graduated to $\frac{1}{2}$-fl dr~~ **1 gi, 0.5 pt, 1 pt, 1 qt, 0.5 gal, 1 gal, and a 2 fl oz cylindrical graduate, graduated to 0.5 fl dr is**is recommended.

- Defoaming agents may be necessary for testing liquids such as beer and soft drinks that effervesce or are carbonated. Two such products are Hexanol or Octanol (Capryl Alcohol).
- ~~Bubble~~ level at least 152 mm (6 in) in length
- Stopwatch **per Chapter 2, Section 2.2.5. "Other Test Equipment Requirements."**

(Amended 20XX)

3.3.2. Test Procedure

5. Follow Steps 1 through 6 in Section 3.2. "Gravimetric Test Procedure for Non-Viscous Liquids" for each package in the sample.

6. In Step 5, drain the container into the flask for one minute after the stream of liquid breaks into drops **of liquid**.

7. Read the package errors directly from the graduations on the measure. The reference temperature must be maintained within ± 2 °C (± 5 °F) for the entire sample.

(Amended 20XX)

3.4. Volumetric Test Procedures for Viscous Fluids – Headspace

Depending on how level the surface of the commodity is, use one of the two headspace test procedures. Use Section 3.4.2.a. "Test Procedure for Testing Oils, Syrups, and other Viscous Liquids with a Smooth and Level Surface" to determine volume where the liquid has a level surface ~~(e.g., oils, syrups, and other viscous liquids)~~. Use Section 3.4.2.b. "Test Procedure for Testing Mayonnaise, Salad Dressing, and Water Immiscible Products with no Smooth and Level Surface" to determine volume where the commodity does not have a level surface (e.g., mayonnaise and salad dressing).

Before conducting either of the following volumetric test procedures, follow Section 2.3.1. "Define the Inspection Lot." Use a "Category A" sampling plan in the inspection; select a random sample.

(Amended 2019 **& 20XX)**

3.4.1. Test Equipment

- Micrometer depth gage (ends of rods may be flat or fully rounded) 0 mm to 225 mm (0 in to 9 in) or longer.

- Level (at least 152 mm [6 in] in length)
- Laboratory pipets and/or buret
  - Class A 100 mL buret as defined by the latest version of ASTM E287, "Standard Specification for Laboratory Glass Graduated Burets."
  - Class A pipets, calibrated "to deliver "as defined by the latest version of ASTM E969, "Standard Specification for Glass Volumetric (Transfer) Pipets."

- Volumetric ~~measures~~ **standards (used to verify accuracy) per Chapter 2, Section 2.2.5 "Other Test Equipment Requirements".**
- Distilled Water or Reverse Osmosis Water (for use with laboratory pipets and/or burets)
- Water
- Rubber bulb syringe
- Plastic disks that are 3 mm (1/8 in) thick with diameters equal to the seat diameter or larger than the brim diameter of each container to be tested. The diameter tolerance for the disks is 50 µm (± 0.05 mm [± 0.002 in]). The outer edge should be smooth and beveled at a 30° angle with the horizontal to 800 µm (0.8 mm [1/32 in]) thick at the edge. Each disk must have a 20 mm (3/4 in) diameter hole through its center and a series of 1.5 mm (1/16 in) diameter holes 25 mm (1 in) apart around the periphery of the disk and 3 mm (1/8 in) from the outer edge. All edges must be smooth.

- Stopwatch **per Chapter 2, Section 2.2.5. "Other Test Equipment Requirements."**
- Partial immersion thermometer (or equivalent) with 1 °C (2 °F) graduations and a range of − 35 °C to + 50 °C (− 30 °F to + 120 °F) **range,** accurate to ± 1 °C (± 2 °F) **see Chapter 2, Section 2.2.5 "Other Test Equipment Requirements".**

(Amended 2019 **& 20XX)**

3.4.3. Evaluation of Results

For either of the above procedures **(3.4.2.a., 3.4.2.b.)**, follow the procedures in Section 2.3.7. "Evaluate for Compliance" to determine lot conformance.

3.5.2. Test Procedure

Note: Make all measurements on a level surface.

1. Before conducting any of the following volumetric test procedures, refer to Section 2.3.1. "Define the Inspection Lot." Use a "Category A" sampling plan in the inspection; select a random sample.

2. When testing goods labeled by capacity, use water at a reference temperature of 20 °C ± 2 °C (68 °F ± 5 °F).

3. Select a sample container and place a disk larger than the container opening over the opening.

4. Measurement Procedure:

   - Add water to the container using flask (or flasks), graduate, or buret corresponding to labeled capacity of the container. If it appears that the contents of the flask may overfill the container, do not empty the flask. Add water until all of the air in the container has been displaced and the water begins to rise in the center hole of the disk. Stop filling the container when the water fills the center disk hole and domes up slightly due to the surface tension.

- If the water dome breaks on the surface of the disk, the container has been overfilled and the test is void; dry the container and start over.
- Record the amount of water used to fill the container and subtract 1 mL (0.03 fl oz) ~~this~~ **(which** is the amount of water held in the hole in the disk specified) to obtain the total container volume.

5. Test the other containers in the sample according to Steps 3 and 4 of this procedure.

6. To determine package errors, subtract the total container volume obtained in Step 4 of this procedure from the labeled capacity of the container.
(Amended 20XX)

3.7.1. Test Equipment

- A scale that meets the requirements in Section 2.2. "Measurement Standards and Test Equipment"
- Volumetric ~~measures~~**standards (used to verify accuracy) per Chapter 2, Section 2.2.5 "Other Test Equipment Requirements"**
- Partial immersion thermometer (or equivalent with 1 °C (2 °F) graduations and a range of – 35 °C to + 50 °C (– 30 °F to + 120 °F) **range,** accurate to ± 1 °C (± 2 °F) **see Chapter 2, Section 2.2.5 "Other Test Equipment Requirements".**
- Micrometer depth gage (ends of rods may be flat or fully rounded), **with an operating range of** 0 mm to 225 mm (0 in to 9 in)
- Spanning bar, 25.4 mm × 25.4 mm × 304 mm or (1 in × 1 in × 12 in)
- Ruler, 304 mm (12 in)
- Paint solvent or other solvent suitable for the product being tested
- Cloth, 304 mm (12 in) square
- Wood, 50 mm (2 in) thick × 150 mm (6 in) wide × 300 mm (12 in) long
- Rubber mallet
- Metal disk or other appropriate shape, 6.4 mm (¼ in) thick and slightly smaller than the diameter of package container bottom
- ~~Rubber s~~Spatula **(rubber or silicon)**
- Level at least 152 mm (6 in) in length
- Distilled water or reverse osmosis water
- Micrometer (optional)
- Stopwatch **per Chapter 2, Section 2.2.5. "Other Test Equipment Requirements."**

(Amended 2019 **& 20XX**)

3.7.2. Test Procedures

a. Plant Audit Test Procedure

Use the following procedure to conduct an audit inspection in a production facility. This method applies to containers in a sample that are the lightest in weight and likely to contain the smallest volume of product. Duplicate the level of fill with water in an empty unused container of the same dimensions and capacity as the one under test. Use this method to check any size rigid container, if the liquid level is within the measuring range of the depth gage. If any paint is clinging to the sidewall or lid, carefully scrape the paint into the container using ~~a rubber~~ **the** spatula to ensure the full content volume is measured.

Note: Do not shake or invert the containers selected as the sample**.**

1. Follow Section 2.3.1. "Define the Inspection Lot" to determine which "Category A" sampling plan to use; select a random sample.

Note: The sample containers shall be identically labeled as to volume, brand, commodity, color, and lot.

2. Determine the gross weight of the sample container. Record the gross weight of the lightest and heaviest container.

3. Select the lightest container and place it on a level work surface and open it. Place a spanning bar and depth gage across the top center of the container. Lower the depth gage rod until its point touches the surface of the paint and lock the rod adjustment.

4. Obtain an empty, unused – undamaged container of the same type and capacity as the container under test from the packer. Place the container on a rigid level work surface and place a disk or other appropriate support under the bottom to prevent deflection.

5. Use a volumetric flask or cylinder to fill the container with water [water reference temperature 20 °C ± 2 °C (68 °F ± 5 °F)] to the largest labeled quantity declared on the container.

6. Place the spanning bar and depth gage (locked at the surface depth of the paint in the container measured in Step 3.) across the top center of the container. If the point of the depth gage is at or below the surface of the water added in Step 4. assume the container is not short measure. When the audit test indicates that a short measure may exist in the sample container, then use Section 3.7.2.b. "Compliance Test Procedure".

(Added 2019)

b. Compliance Test Procedure

Use the following procedure when testing rigid containers of paint when they have failed the plant audit test. This procedure is used to test paint or other liquid whether testing is performed inside the plant or at retail.

Note: Do not shake or invert the containers selected as the sample.

1. Follow Section 2.3.1. "Define the Inspection Lot" to determine which "Category A" sampling plan to use; select a random sample.

Note: The sample containers shall be identically labeled as to the volume, brand, commodity, color, and lot. The steps noted with an (*) are required if there is paint adhering to the lid and it cannot be removed by scraping into the container.

2. Determine the gross weight of these containers and record in Column 2 of the "Example Worksheet for Determining Possible Violation in Checking Paint" (in this section). Select and test the containers in order of the lightest to the heaviest.

3. Record the labeled volume of the first tare sample package in Column 1 of the worksheet. Place the container on a level surface and use a circular (or appropriately shaped) metal or other solid disk to eliminate deflection in the bottom of the container and remove the lid. If paint clings to the lid of the container, scrape it off with ~~a~~ **the** spatula and place back into the container.

4. *If paint that adheres to the lid cannot be completely removed then by scraping the paint into the container, determine the weight of the lid plus any adhering paint. Clean (dry) the paint lid with solvent and weigh again. Subtract the clean (dry) lid weight from the lid weight with paint (wet) to determine the weight of the paint adhering to the lid. Record this weight in Column 3.

5. Place the spanning bar and depth gage across the top center of the container. Mark the location of the spanning bar on the rim of the container. Lower the depth gage rod until the point touches the paint surface and lock the rod adjustment.

6. Empty and clean the sample container and lid with solvent; dry and weigh the container and lid. Record the tare weight in Column 5.

7. Set up the container in the same manner as in Step 3.

8. Place the spanning bar at the same location on the rim of the paint container as marked in Step 5. With the depth gage set as described in Step 5, deliver water into the container in known amounts until the water reaches the same level occupied by the paint as indicated by the depth gage. Record this volume of water (in mL or fl oz) in Column 6 of the worksheet. This is the volume occupied by the paint in the container. Follow Steps 9a, 10a, and 11a if scraping does not remove the paint from the lid. To determine if gravimetric testing can be used to test the other containers in the sample, follow only Steps 9, 10, and 11 when no paint adheres to the lid.

9. Subtract the **tare** weight of the container (Column 5) from the gross weight (Column 2) to arrive at the net weight of paint in the selected container. Record the net weight in Column 7 of the worksheet.

   9a.* Subtract the **tare** weight of the container (Column 5) and the weight of product on the lid (Column 3) from the gross weight (Column 2) to arrive at the net weight of paint in the container. Record in Column 7 (excluding the weight of the paint on the lid).

10. Calculate the weight of the labeled volume of paint (for the first container opened for tare).

    Net Weight (Column 7) × Labeled Volume (Column 1) ÷ Volume of paint in can (Column 6)

    Record this value in Column 8.

    10a.* Calculate the package volume =

    Volume in container (Column 6) + (lid weight [Column 3] ×
    Volume in container [Column 6] ÷ net weight [Column 7])

    Record it in Column 9 of the worksheet.

11. Calculate the package error. Use the following formula if paint does not adhere to the lid.

    Package error = (Column 6 value) − (labeled volume)

    11a.* Use the following formula if paint does adhere to the lid and will not come off by scraping.
    Package error = (Column 9 value) − (labeled volume)

12. Repeat Steps 2 through 11 for the second package chosen or tare

(Amended 2010 and 2019)

Example Worksheet for Determining Possible Violation in Checking Paint (add additional rows as needed)								
1. Labeled Volume	**2. Gross Weight**	**3. Lid Weight (Wet − Dry)**	**4. Liquid Level**	**5. Tare <u>Weight</u>**	**6. Water Volume**	**7. Net Wt. = 2 − 5**	**8. Weight of Labeled Volume = 7 × 1 ÷ 6**	**9. Package Volume = 6 + [(3 ÷ 7) × 6)]**

Note: A gravimetric procedure can be used if the weights of the labeled volume for the first two containers do not differ from each other by more than one division on the scale (if they meet this criterion, check the rest of the sample gravimetrically and record in Column 8). The weight of a given volume of paint often varies considerably from container to container; therefore, volumetric measurement may prove necessary for the entire sample using the headspace procedure in Step 8. To determine the volume and enter the Package Volume in Column 9. Proceed to procedures in Section 2.3.7. "Evaluate for Compliance".

Note: To conserve inspection time and reduce destructive testing the inspector may stop testing and consider this test as an audit if the first few containers ~~contain the correct~~**<u>meet or exceed the labeled quantity</u>**. However, the inspector may continue to test the complete sample to determine the average fill level of the entire sample.

13. Use Section 2.3.6. "Determine Nominal Gross Weight and Package Error" to determine the "Nominal Gross Weight" as follows:

The nominal gross weight equals the sum of the average weight of the labeled volume (average of values recorded in Column 8) plus the average tare (average of values recorded in Column 3) for the containers selected for tare.

<u>(Amended 20XX)</u>

3.8.1. Test Equipment

- A scale that meets the requirements in Section 2.2. "Measurement Standards and Test Equipment."

- Pycnometer (pik·näm´ ət ər), a vessel of known volume used for weighing semifluids. The pycnometer can be bought or made. If it is made, refer to it as a "density cup." To make a 150 mL or 5 fl oz density cup, cut off the lip of a 150 mL beaker with an abrasive saw and grind the lip flat on a lap wheel. The slicker plate is available commercially. The metrology laboratory should calibrate the density cup gravimetrically with respect to the contained volume using the procedure as defined by the latest version of ASTM E542, "Standard Practice for Calibration of Laboratory Volumetric Apparatus."

Note: If applicable, comply with any special instructions furnished by the manufacturer to calibrate a pycnometer that has not been calibrated. It is not necessary to reweigh or recalibrate for each test; however, mark the pieces of each unit **<u>with unique identification</u>** to prevent interchange of cups and slicker plates.

- Appropriate solvents (water, Stoddard solvent, kerosene, alcohol, etc.)

- Caulking gun (for cartridge packed products)

(Amended 20XX)

3.8.2. Test Procedure

1. Follow the procedures in Section 2.3.1. "Define the Inspection Lot." Use a "Category A" sampling plan in the inspection; and select a random sample.

2. Weigh a calibrated pycnometer and **its associated** slicker plate, and record as "pycnometer weight" and record the volume of the pycnometer.

3. Determine the gross weight of the first package and record the weight value. Open the package and transfer the product to the pycnometer by filling it to excess. Use a caulking gun to transfer product from the caulking cartridges. If using a pycnometer, cover it with a lid and screw the cap down tightly. Excess material will be forced out through the hole in the lid, so the lid must be clean. If using a density cup, place the slicker plate over ¾ of the cup mouth, press down and slowly move the plate across the remainder of the opening. With the slicker plate in place, clean all the exterior surfaces with solvent and dry.

4. Completely remove **any remaining** ~~the~~ product from the package container; clean the package container with solvent; dry and weigh it to determine the tare weight.

5. Weigh the filled pycnometer or filled density cup with slicker plate and record this weight. Subtract the weight of the empty pycnometer from the filled weight to determine the net weight of the product contained in the pycnometer and record this weight.

6. Clean the pycnometer and repeat Steps 3, 4, and 5 for the second package in the tare sample.

7. Determine acceptability of the density variation on the two packages selected for tare. If the difference between the densities of the two packages exceeds one division of the scale, do not use the gravimetric procedure to determine the net quantity of contents. Instead, use the procedure in steps 9, 10, and 11.

Product Density = *Weight of Product in Pycnometer ÷ Pycnometer Volume* ~~*= Product Density*~~

Note: If the gravimetric procedure can be used, perform Steps 8, 10, and 11 for each package in the sample.

8. Calculate the weight of product corresponding to the labeled volume of product according to the following formula:

Labeled Weight = *Product Density × Labeled Volume* ~~*= Labeled Weight*~~

9. Test each package individually by determining the product density in each package using the pycnometer and record the gross, tare, and net weight of each package. Subtract the weight of the labeled volume (determined for each package) from the net weight of product to arrive at each individual package error in units of weight.

10. Convert the package errors to units of volume using the following formula:

Package Error (volume) =
(Package Error [weight] × Pycnometer Volume) ÷ (Weight of Product in Pycnometer)

11. Record the package errors on the report form, using an appropriate unit of measure.

(Amended 20XX)

3.9.1.1. Test Equipment

- Calculator or spreadsheet Software (programmed to make volume calculations
- ~~Worksheet for~~ Peat Moss Labeled by Volume **Package Worksheet** – Dimensional Procedure (see Appendix C. "Model Inspection Report Forms.")
- ~~Non-permanent marking pen.~~
- Knife or razor cutter (for use in opening packages and unwrapping shrink-wrapped pallets in warehouses)
- Cellophane or duct tape (for use in securing packaging tails)
- Dimensional Measuring Frame (see Figure 3-1. "Dimensional Measuring Frame").



Figure 3-1. Dimensional Measuring Frame

- Rigid Rulers with 1.0 mm graduations. The edges of a ruler used with a measuring frame must be straight and the edges must be the zero point (see Figure 3-1. "Dimensional Measuring Frame").
  - 304 mm (12 in)
  - 500 mm (19.5 in)
  - 1 m (39 in)
- Carpenter square
  - 304 mm (12 in)
  - 600 mm (24 in)

(Amended 2015 **&** **20XX**)

3.9.1.2. Test Procedure

Test Notes:

Rounding: When a package measurement falls between graduations on a ruler, round the value up. This practice eliminates the issue of rounding from the volume determination and provides the packager the benefit of the doubt. If a ruler with a graduation of 1.0 mm is used, the rounding error will be limited to 0.5 mm or less. It is good practice to circle a measurement that has been rounded up or make a statement to such effect so that it becomes a part of the record.

Dimension Identification: The following package nomenclature is used to identify the dimensions measured in this test procedure (see Figure 3-2. "Dimensional Identification").

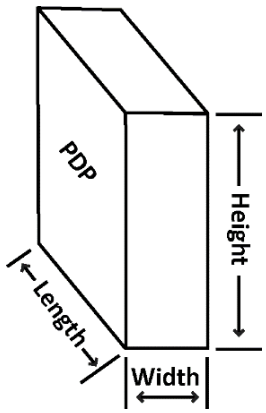


Figure 3-2. Dimensional Identification

Note: Packages of compressed peat moss do not have declaration of expanded volume.

Safety Precautions:

This procedure does not address all of the safety issues that users need to be aware of in order to carry out the following tasks. Users are sometimes required to conduct tests in warehouse spaces or retail stores where forklift trucks are in motion**.** ~~–~~ ~~e~~**C**are must be taken to warn others to avoid or exercise care around the test site. The procedure requires users to lift heavy objects including large bulky packages and test measures and includes the use of sharp instruments to obtain packages from shrink-wrapped pallets. Users may be required to climb ladders or work platforms to obtain sample packages. When opening and emptying packages, dust, or other particles may be present or escape from the packages, which may cause eye injuries and respiratory or other health problems. Users must utilize appropriate safety equipment and exercise good safety practices. If safe working conditions cannot be ensured, suspend testing until the situation is corrected **or abated**.

1. Follow Section 2.3.1. "Define the Inspection Lot." Use a "Category A" Sampling Plan for the inspection. Collect the sample packages from the Inspection Lot using random sampling. If the packages are not randomly selected, the sample will not be representative of the lot and the test results will not be valid for use in enforcement action. Place the sample packages in a location where there is adequate lighting and ample space for the packages and test equipment.

2. Examine the package for excess packaging material (i.e., packaging tails). Fold the packaging material consistent with design of the packaging and tape the material securely to the package so that its effect on the dimensional measurement is minimized. If the thickness of packaging tail appears excessive, it is appropriate to determine its average thickness by making at least three measurements along its length using a dead weight dial micrometer specified in Section 4.5. "Polyethylene Sheeting" and subtract the thickness from the measurement of length, width or height. Any deduction from a measurement should be noted on the inspection report.

3. If a Dimensional Measuring Frame is used, place it on a solid support. If a table is used, select one of sufficient load capacity to hold the weight of the frame, **tools,** and the heaviest package to be tested.
4. Position the frame so that the zero end of the ruler can be placed squarely and firmly against a surface of the frame and so that the ruler graduations can be read. Position yourself so that you can read both the ruler and the edge of the carpenter square in Figure 3-3. "Rigid Frame."



Figure 3-3. Rigid Frame

The rigid frame allows the observer to hold the zero reference point firmly in place.

5. Place the package against two sides of the frame without compressing the package. Place a carpenter square against the package at the point of measurement and align the ruler perpendicular to the edge of the carpenter square as shown in Figure 3-4. "Length Measurement" where the package length, Figure 3-5. "Height Measurement" where the package height are being determined, and Figure 3-6. "Width Measurement" where the package width are being determined.



Figure 3-4. Length Measurement

Using a measuring frame for dimensional testing ruler and carpenter square define zero reference and measurement point.



Figure 3-5. Height Measurement

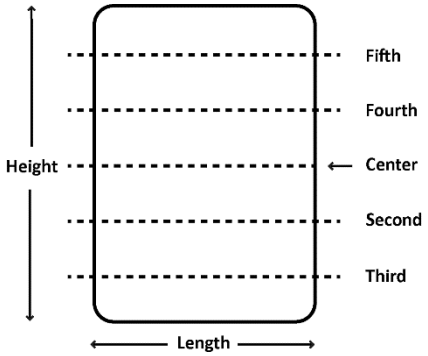
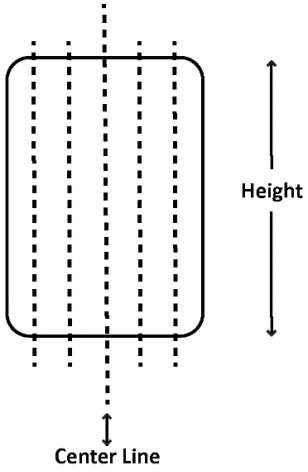
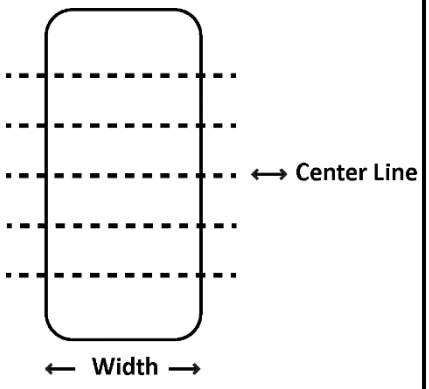
The packaging tail on the end of the package can affect this measurement so it has been folded over and taped against the end of the package.



Figure 3-6. Width Measurement

The frame is rotated on its end to vertical so that the carpenter square does not compress the product

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Inspect the package for shape and place the flattest surfaces against the measuring frame.	
Length (see Figure 3-4. "Length Measurement") (a) Take the first measurement across the center line of the length axis of package. (b) Take the second measurement at half the distance between the center line and either of the package edges. (c) Take the third measurement half the distance between the second measurement and the package edge. (d) Take the fourth measurement on the opposite end of the package at half of the distance between the center line and the package edge. (e) Take the fifth measurement at half of the distance between the fourth measurement and the package edge.	
Height (see Figure 3-5. "Height Measurement") (a) Take the first measurement across the center line of the height axis of the package. (b) Take the second measurement at half the distance between the center line and the package edge. (c) Take the third measurement half the distance between the second measurement and the package edge. (d) Take the fourth measurement on the opposite end of the package at half of the distance between the center line and the package edge. (e) Take the fifth measurement at half of the distance between the fourth measurement and the package edge.	
Width (see Figure 3-6. "Width Measurement") If using one, turn the measuring frame on end and place the package on its bottom and against the frame as shown in the picture and on the right where the package width is being measured. (a) Take the first measurement across the center line of width axis of the package. (b) Take the second measurement at half the distance between the center line and the package edge. (c) Take the third measurement half the distance between the second measurement and the package edge. (d) Take the fourth measurement on the opposite end of the package at half the distance between the center line and the package edge. (e) Take the fifth measurement half of the distance between the forth measurement and the package edge.	

1

2



~~**Figure 3-5. Height Measurement**~~

~~**The packaging tail on the end of the package can affect this measurement so it has been folded over and taped against the end of the package**~~.

6. Measurements – take at least five measurements* of each of the dimensions as follows:

   *On small packages (height or length dimensions of 152 mm [6 in] or less), at least three measurements are taken using the following instructions.

7. Record the dimensions of each package in millimeters in a software program or inspection form that includes the information shown in the sample worksheet "Calculate the Compressed Volume of the Package in Liters" (below). Enter the measurements in the appropriate spaces and calculate the volume in liters. Calculate the package error by following the steps listed in the table and then calculate the average error for the sample.

Note: The following table is an example of the information from an actual test that is included in a worksheet for verifying the compressed volume on packages of peat moss. The Peat Moss Labeled by Volume Package Worksheet – Dimensional Procedure (see Appendix C. "Model Inspection Forms") has space for a sample of 12 packages and includes the steps for calculating the Average Package Error. Here, the package error in the dimensional volume was + 6.8 L (+ 0.24 ft^3). To determine the value of the MAV, look up the labeled quantity in Appendix A., Table 2-6. "Maximum Allowable Variations for Packages Labeled by Liquid and Dry Volume."

Sample Worksheet Calculate the Compressed Volume of the Package in Liters				
Unit of Measure = 1.0 mm		**Length (L)**	**Width (W)**	**Height (H)**
	1.	*482*	*282*	*690*
	2.	*490*	*278*	*690*
	3. (Center Line)	*493*	*276*	*681*
	4.	*499*	*272*	*677*
	5.	*493*	*269*	*657*
a.	**Average:**	*491*	*275.4*	*679*
b.	**Actual Calculated Volume L × W × H = Volume/1 000 000**	*91.8 L/3.24 cu ft*		
c.	**Labeled Compressed Quantities**	*85.0 L/3.0 cu ft*		
d.	**Conversion Factors**	*NA*	*(b) × 61.023 74*	*(b) × 0.035 314 67*
e.	**Converted Volume**	*91.8 L*	*NA cu in*	*3.24 cu ft*
f.	**Package Error = (b – c)**	*6.8 L*	*NA cu in*	*0.24 cu ft*

(Amended 2010**,** ~~and~~ 2015 **& 20XX**)

3.9.2.1. Test Equipment

- ~~12.7~~ **12.5** mm (or 1/2 in) sieve**, (per ASTM D2978)**
- Use a measure appropriate for the package size. (Refer to Table 3-4. "Specifications for Test Measures for Mulch and Soils" for additional information on test measure size and construction.)
- Straight edge, 508 mm (20 in) in length
- Sheet for catching overflow of material
- Level (at least 152 mm [6 in] in length)

(Amended 2015 **& 20XX**)

3.10.2. Test Procedure

1. Follow Section 2.3.1. "Define the Inspection Lot." Use a "Category A" sampling plan in the inspection, and select a random sample.

2. Some types of mulch are susceptible to clumping and compacting. To ensure that the material is loose and free flowing when placed into the test measure, gently massage the package while rolling the bag on the ground (or flat surface) at least four full rotations (but not more than eight full rotations), without lifting or dropping the package, before opening to reduce the clumping and compaction of the material.

Note: Mulch products stored exposed to the elements may become saturated with moisture. Excessive moisture adds weight to mulch particles and distorts the volume test results. Test samples with flowing or excessive collected moisture in the package shall be excluded from the test procedure.

3. Placing contents into the test measure.
   - Open the bag, gather the bag opening to ensure that no product is lost. Place the gathered bag opening as far into the top of the measure as possible without disturbing or leaning against the measure.

   - Release the bag opening and quickly dump the contents of the package into a test measure in a continuous flow.

Note: Do not touch the product or disturb the test measure by rocking, shaking, dropping or tamping it during the test procedure.

   - Massage the outside of the bag to maintain a continuous flow of the product but not for the purpose of de-clumping the product.

   - Using your hand, gently level the contents, being careful not to affect the compaction of the product.

4. Read the horizontal marks at a position level with the product and round the readings between two marked intervals up to the nearest ~~38.1~~ **12.7** mm (1/2 in) increment to determine the package net volume.

5. Determine package errors by subtracting the labeled volume from the package net volume in the measure. Record each package error.

$$Package\ Error = Package\ Net\ Volume - Labeled\ Volume$$

(Amended 2017 **& 20XX**)

3.11.1. Test Equipment

- A scale that meets the requirements in Section 2.2. "Measurement Standards and Test Equipment"

- Volumetric ~~measures~~**standards (used to verify accuracy) per Chapter 2, Section 2.2.5 "Other Test Equipment Requirements".**

- Displacement vessel with dimensions appropriate for the size of novelties being tested (see Figure 3-7(a), "Example of a Displacement Vessel"). It should include an interior baffle that reduces wave action when the novelty is inserted and a downward angled overflow spout to reduce dripping. Other designs may be used.



Figure 3-7(a). Example of a Displacement Vessel

- Insulation shield

  - Styrofoam Board – minimum one-inch-thick

  - Styrofoam glue

Figure 3-7(b)(c)(d). Example of an Insulation Shield with Acrylic Displacement Vessel



(b)



(c)



(d)

Figure 3-7(e)(f)(g). Example of an Insulation Shield with Metal Displacement Vessel



(e)



(f)



(g)

- Thin wire, clamp, or tongs
- Freezer or ice chest
- Single-edged razor or sharp knife (for sandwiches only)
- Prepared, chilled water maintained at 1 °C (33 °F) or below
- Ice Cubes and Dry Ice (Safe Handling and Storage of Dry Ice | OSHA Safety Manuals Safe Handling and Storage of Dry Ice OSHA Safety Manual: **(www.safetymanualosha.com/safe-handling-and-storage-of-dry-ice/)**
- Cryogenic gloves (for handling dry ice)

- Preparation container for prepared, chilled water with insulation (for protection from thermal transfer from ambient environment)

- Straining device to catch ice cubes and dry ice chunks from flowing into displacement vessel

- Indelible marker (for ice pops only)
- Level, at least 152 mm (6 in) in length
- Partial immersion thermometer or equivalent with 1 °C (2 °F) graduations and a − 35 °C to + 50 °C (− 30 °F to + 120 °F) **range,** accurate to ± 1 °C (± 2 °F) **see Chapter 2, Section 2.2.5 "Other Test Equipment Requirements".**

- A table top, laboratory-type jack of sufficient size to hold the displacement vessel
- Stopwatch **per Chapter 2, Section 2.2.5. "Other Test Equipment Requirements."**

(Amended 2024 **&** **20XX**)

3.11.2. Test Procedure

8. Follow the procedures in Section 2.3.1. "Define the Inspection Lot." Use a "Category A" sampling plan in the inspection; and select a random sample.

2. Place the assembled displacement vessel and insulation shield in a freezer or an ice chest filled with dry ice for at least 30 minutes prior to testing. It is advisable to pre-chill water for use as immersion fluid in a sufficient volume to fill the displacement vessel and to replenish as needed throughout the testing procedures by placing a container of water in a refrigerator or ice chest during the same period.

Note: The insulation shield should be assembled with dimensions that will cover as much surface area of the displacement vessel and minimal gaps between the seams (see Figure 3-7(b)(c)(d), "Example of an insulation shield with displacement vessel "). The purpose of the insulation shield is to reduce thermal transfer from the ambient environment to the displacement vessel to maintain the immersion fluid at 1 °C (33 °F) or below, as consistently as possible during testing.

Maintain the ice cream, ice pop or similar frozen novelty samples at the reference temperature for frozen products that is specified in Table 3-1. "Reference Temperatures for Liquids." Place the samples in the freezer or ice chest until they are ready to be tested, ~~and~~ then remove packages from the freezer one at a time.

3. According to the type of novelty, prepare the sample products as follows:

- ***Ice-pop**. Mark on the stick(s) with the indelible marker **at** the point to which the ice-pop will be submerged in the prepared, chilled water. (After the ice-pop contents have been submerged, remove the novelty to determine the volume of the stick.)

- ***Cone**. Make a small hole in the cone below the ice cream portion to allow air to escape.

- **Sandwich**. Determine whether the declared volume is (a) the total volume of the novelty (that is, including the cookie portion) or (b) the volume of the ice-cream-like portion only. If the declared volume is the volume of only the ice-cream-like portion, shave off the cookie with a **single-edged** razor or **sharp** knife, leaving some remnants of cookie to ensure that no ice cream

is accidentally shaved off. Work quickly, and return the novelty to the freezer before the sandwich softens.

- **Cup**. Remove the cap from the cup.

4. Prepare immersion fluid to a temperature of 1 °C (33 °F) or below by adding dry ice and ice cubes to water in a preparation container.

For best results, use an insulated preparation container to prevent thermal transfer from ambient air. Monitor the water temperature throughout this procedure by placing the thermometer in the center position of the pitcher.

Note: Be cautious while handling dry ice due to its very low temperature (− 109 °F); handle it with cryogenic gloves to prevent frostbite or freezer burns to skin.

Note: Dry ice (− 109 °F) is the key ingredient for the chilled water immersion fluid preparation because of its very low temperature. However, while the dry ice lowers the water mixture temperature, the water surface that is in contact with the ambient air in the testing environment is also constantly gaining heat due to heat transfer. To resolve this problem, add ice cubes to the water; the ice cubes will float and form an insulation barrier, thereby, allowing water temperature to be maintained at the required temperature. The approximate ratio to make the prepared, chilled water (can reach as low as 31.6 °F) are as follows:

Water : Dry ice : Ice cubes = 6 parts : 1 part : 2 parts

Note: ~~Monitoring of~~ **T**~~t~~he temperature of the chilled water immersion fluid should be ~~conducted~~ **monitored** throughout the testing. At any time that the chilled water temperature exceeds 1 °C (33 °F), a new batch of chilled water at the required temperature will need to be prepared to ~~validate~~ **ensure the proper** ~~the~~ testing procedure **is followed.**

5. When the displacement vessel and the insulation shield are both chilled and ready to be used, remove from freezer and set up on testing surface.

6. Fill the displacement vessel with prepared, chilled water until it overflows **through** the spout. Use a strainer to prevent ice cubes or dry ice chunks from flowing into the displacement vessel. Allow it to sit until dripping stops. Raise the displacement vessel with a tabletop laboratory-type jack as necessary and place the ~~graduate~~ **volumetric standard** of appropriate capacity beneath the spout.

7. Remove a package from the freezer, determine its gross weight, and record it.

8. Submerge the novelty as suggested until it is below the surface level of the water.

- **Ice-pop**. Use a clamp, tongs, or your fingers to hold the stick(s) and submerge the ice-pop to the level marked in Step 3 of the Test Procedure.

- **Cone**. Shape the wire into a loop, and use it to push the cone, headfirst (ice cream portion first) into the prepared, chilled water. Do not completely submerge the cone immediately: let water fill the cone through the hole made in Step 3 of the Test Procedure before completely submerging the novelty.

- **Sandwich or cup**. Skewer the novelty with the thin wire or form a loop on the end of the wire to push the sandwich or ice cream portion or cup completely below the liquid level.

9. Record the total water volume in the graduate.

   - For a cone or sandwich, record the water volume as the net volume and go to Step 11.

   - For ice-pops or cups, record the water volume in the graduate as the gross volume and go to Step 10.

10. Refill the displacement vessel with prepared, chilled water to overflowing and reposition the empty graduate under the spout. After the cup and novelty contents have been submerged, remove the novelty from the cup to determine the volume of the cup.

    - **Ice-pop**. Melt the ice-pop off the stick or sticks. Submerge the stick or sticks to the line marked in Step 3. Record the volume of tare material (i.e., stick) by measuring the water displaced into the graduate. The net volume for the ice-pop is the gross volume recorded in Step 9 minus the volume of the tare materials in this step. Record this volume as the "volume of novelty." To determine the error in the package, subtract the labeled quantity from the volume of novelty.

    - **Cup**. Remove the novelty from the cup. Rinse the cup, and then submerge it in the displacement vessel. Small pinholes in the base of the cup can be made to make submersion easier. Record the volume of water displaced into the graduate by the cup as the volume of tare material. The net volume for the novelty is the gross volume determined in Step 9 minus the volume of the tare materials determined in this step. Record this as the net volume of the novelty. To determine the error in the package, subtract the labeled quantity from the volume of novelty.

11. Clean and air-dry the tare materials (sticks, wrappers, cup, lid, etc.). Weigh and record the weight of these materials for the package.

12. Subtract the tare weight from the gross weight to obtain the net weight and record this value.

13. Compute the weight of the labeled volume for the package using the following formula and then record the weight:

    Product Density = (product net weight in Step 12) ÷ (the total water volume in Step 9 – volume of tare material in Step 10)

    Weight of labeled volume = (labeled volume) × (Product Density)

14. Repeat Steps 3 through 13 for a second package.

Note: ~~Monitoring of~~ ~~t~~**T**he temperature of the prepared, chilled water should be ~~conducted~~ **monitored** throughout the testing. At any time that the chilled water temperature exceeds 1 °C (33 °F), a new batch of chilled water at the required temperature will need to be prepared to ~~validate the~~ **ensure the proper** testing procedure **is followed**.

15. Repeat prepared, chilled water preparation and freezing of insulation shield and displacement vessel as needed throughout the inspection time period. If the weight of the labeled volumes in Step 13 for the two packages differs from each other by more than one division on the scale, the gravimetric test procedure cannot be used to test the sample for compliance. If this is the case, use Steps 3 through 10 for each of the remaining packages in the sample to determine their net volumes and package errors. Then go to evaluation of results. If the weights of the labeled volumes agree within one division, continue to Step 16 to test the rest of the sample using the gravimetric test procedure.*

16. Use Section 2.3.5.1. "Determination of Tare Sample and Average Tare Weight" to determine the Average Used Dry tare Weight of the sample.

17. Find the Average Product Density by adding the densities of the product from the two packages and dividing the sum by two.

18. Using the weight of labeled volume determined in Step 13, calculate the Average Product Weight by multiplying the weight of the labeled volume by the average product density.

**Average Product Weight = Labeled Volume × Average Product Density*

19. Calculate the "nominal gross weight" using the formula:

Nominal Gross Weight = Average Product Weight + Average Used Dry Tare Weight

20. Weigh the remaining packages in the sample.

21. Subtract the nominal gross weight from the gross weight of each package to obtain package errors in terms of weight.

Note: Compare the sample packages to the nominal gross weight.

22. Determine the average package error by totaling all package errors and dividing by the number of packages in the sample.

To convert the average error or package error from weight to volume, use the following formula:

Package Error in Volume = (Package Error in Weight) ÷ (Average Product Density)

(Amended 2024 **& 20XX**)

3.12.1. Test Equipment

- A scale that meets the requirements in Section 2.2. "Measurement Standards and Test Equipment"

- Volumetric ~~measures~~ **standards (used to verify accuracy) per Chapter 2, Section 2.2.5 "Other Test Equipment Requirements".**

- Micrometer depth gage (ends of rods fully rounded), 0 mm to 228 mm (0 in to 9 in)

- Strainer for determining the amount of drained liquid from shucked oysters. Use a strainer and a slightly smaller bottom receiving pan or tray constructed to the following specifications:

- Sides: 50 mm (2 in)
- Area: 1 935 cm^2 (300 in^2) or more for each 3.78 L (1 gal) of oysters

Note: Strainers of smaller area dimensions are permitted to facilitate testing smaller containers.

- Perforations:
  Diameter: 6.35 mm ($^1/_4$ in)
  Location: 3.17 cm ($1^1/_4$ in) apart in a square pattern, or perforations of equivalent area and distribution.

- Spanning bar, 25.4 mm × 25.4 mm × 304 mm (1 in × 1 in × 12 in)

- ~~Rubber s~~**S**patula **(rubber or silicon)**

- Partial immersion thermometer, 1 °C (2 °F) graduations and a range of – 35 °C to + 50 °C (− 30 °F to + 120 °F) accurate to ± 1 °C (± 2 °F)

- Level, at least 152 mm (6 in) in length

- Stopwatch **per Chapter 2, Section 2.2.5. "Other Test Equipment Requirements."**

(Amended 2014 & **20XX**)

3.14.1. Test Equipment

Linear Measurement The maximum value of graduations on a ruler or tape shall be equal to or less than:		
For Testing	**SI Units**	**U.S. Customary Units**
Packaged Firewood	1 mm	$^1/_{16}$ in (0.062 5 in)
Stacked Firewood	0.5 cm	$^1/_8$ in (0.125 in)

Other Equipment:

Except where a long tape measure is needed for measuring stacks of wood and unless otherwise noted below, a precision tempered steel ruler should be used for linear measurements. Current calibration certificates issued by a NIST recognized or accredited laboratory should be available for all measuring devices.

- To test boxes of firewood, use a straightedge and a 150 mm (6 in) tempered steel pocket ruler to measure the box headspace. A rigid 610 mm (24 in) tempered steel ruler is required to measure piece length and the dimensions of the box.

- To test bundles of firewood, use a rigid 610 mm (24 in) tempered steel ruler to measure typical piece length. If the circumference based auditing method is to be conducted, a precision 610 mm (24 in) diameter (pi) tape or flexible steel tape with 1 mm ($^1/_{16}$ in) graduations may be used to approximate the package volume for screening and audit purposes.

For testing stacks of firewood, a precision tape or long tape measure is used. For testing bundles and bags of firewood, the following equipment and materials are used in addition to the linear measures listed above:

- Binding Straps: Straps with ratchet type closures are easily tightened to secure the wood tightly. The binding straps are used to hold wood bundles together if the bundles need to be removed from the package/wrapping material.

- Graph Paper: 279.4 mm × 431.8 mm (11 in × 17 in) with 0.5 centimeter or ¼ inch squares. This paper is used for tracing and calculating the areas of the ends of a bundle of firewood. Prior to using any graph paper use a calibrated ruler to verify the dimensions of squares at several random points across the page.

- Ruler: 300 mm (12 in) with 0.5 cm ($^1/_4$ in) graduations. This ruler is used with the graph paper to calculate the area of the bundle ends.

- **Sharp point marking pen (This is used in conjunction with the graph paper)**

(Amended 2016 & **20XX**)

The submitter requested that this be a Voting Item in 2027.

Previous Status:

2027: New Proposal

Original Justification:

NIST OWM is reviewing and making editorial changes to NIST Handbooks to ensure compliance with NIST Library Publication Standards and HTML Formatting requirements. This ongoing project is necessary and a required enhancement to the transition from the printed publication to an electronic/digital one. During this endeavor, OWM has identified several sections within NIST Handbook 133 that may encroach on the editorial boundary, including outdated language, references to test equipment, and other updates that we believe need to be presented to the NCWM for consideration.

Possible Opposing Arguments: Questions as to why these changes are necessary.

Comments in Favor:

Regulatory:

-

Industry:

-

Advisory:

-

Comments Against:

Regulatory:

-

Industry:

-

Advisory:

-

Neutral Comments:

Regulatory:
-

Industry:
-

Advisory:
-

Item Development:
New Proposal in 2027

Regional Associations' Comments:
New Proposal in 2027

CWMA 2026 Interim Meeting:

A representative questioned if the print version would be identical to the online version.

The committee recommends a voting status.

WWMA 2026 Annual Meeting:

Mr. John McGuire (NIST OWM) stated that NET-27.3 and NET-27.4 are the results from NIST OWM reviewing NIST Handbook 130 and 133 to advance them into HTML electronic publication. Additionally, regarding the additional documents available online, each include a cover letter outlining the editorial changes to their respective chapters. Mr. McGuire recommended that this item and NET-27.3 be grouped together as a block and supported a VOTING status.

Based on the comments heard during open hearings the WWMA L&R Committee recommends a VOTING status for this item. The committee further recommends that the NCWM L&R Committee consider blocking NET-27.3 and NET-27.4.

NEWMA 2026 Interim Meeting:

A Regulator from NJ concurs with the NIST reformatting and recommends a Voting status.

The committee recommends a voting status.

SWMA 2026 Annual Meeting:

Submitter recommends voting status.

Alison Wilkinson representing the state of Maryland is neutral on this item and recommends developing status.

Brain Terry representing the state of Arkansas supports this item and recommends voting status.

SWMA Laws and Regulations committee recommends this item to be given voting status.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

OTH – OTHER ITEMS

OTH-24.1 A X. Uniform Shipment Law

Source:
New Hampshire Department of Agriculture, Markets & Food

Purpose:
Provide model law language to address the shipment of goods.

Item under Consideration:
Adopt a new Handbook 130 Uniform Shipment Law as follows:

X. Uniform Shipment Law

Section 1. Purpose

The purpose of this Act is to ensure transparent, equitable, and accountable shipment practices concerning the weight, measure, quantity, dimensions, volume, density, classification, and documentation of shipped freight, commodities, and goods.

Section 2. Scope

This Act:

(a) establishes an enforcement program for shipment-related representations of weight, measure, quantity, dimensions, volume, density, classification, and related documentation;

(b) empowers the state to promulgate regulations as needed to carry out the provisions of the Act;

(c) authorizes requirements for records and documentation necessary to determine compliance;

(d) provides for civil and criminal penalties; and

(e) does not establish, regulate, or require freight rates, tariff policies, flat rates, minimum charges, zone-based pricing, or general freight classification determinations; however, shipment information, measurement values, correction documentation, and related records used to determine shipment charges or shipment representations are subject to this Act and any regulation promulgated under this Act.

Section 3. Definitions

As used in this Act:

3.1. Bill of Lading (BOL) / Waybill. - A legal instrument or shipping document used in the transportation and shipment industries that lists the freight being shipped and the terms under which it will be delivered.

3.2. Carrier. - A person engaged in handling, transporting, or delivering freight as part of a commercial transaction.

3.3. Classification. - A shipment-related class, category, code, or designation assigned to freight when based on or affected by measurable shipment information or related shipment documentation. Classification includes a determination or change that relies on weight, measure, quantity, dimensions, volume, density, commodity description, packaging, handling unit, or other shipment information used to determine a shipment representation or shipment charge. Classification does not include the establishment of freight rates, tariffs, or general freight classification systems.

3.4. Commodity. - An article of commerce, especially when delivered for shipment, including any good, product, material, cargo, raw material, agricultural product, livestock or livestock product, metal, energy product, or other article of trade.

3.5. Director. - The of the Department of .

3.6. Freight. - Goods, commodities, or cargo transported by motor vehicle, train, ship, or aircraft for commercial purposes.

3.7. Freight Quote. - Documentation provided by a carrier, logistics service provider, or other responsible party that states the cost of transporting freight based on shipment information, including weight, measure, quantity, dimensions, volume, density, classification, distance, service level, or shipping method.

3.8. Goods. - Physical, movable, tangible items, such as raw materials, parts, and finished products transported by motor vehicle, train, ship, or aircraft.

3.9. Handling Unit. - A single item or group of items that are packaged together and handled as a single unit throughout the shipping process.

3.10. Inspection Certificate. - A document used to signify that shipped freight has been inspected concerning weight, measure, quantity, dimensions, volume, density, classification, or related shipment information.

3.11. Logistics Service Provider. - A person that offers logistics-related services such as transportation, warehousing, freight forwarding, or supply chain coordination on behalf of another party. This includes, but is not limited to, a carrier, third-party logistics provider, freight forwarder, broker, shipper, or broker agent.

3.12. Person. - Any natural individual, corporation, partnership, association, organization, or other legal entity.

3.13. Shipment. - A quantity of goods, freight, or commodities shipped with a logistics service provider.

3.14. Shipper. - A person that sends or requests goods, freight, or commodities using a logistics service provider.

3.15. Unique Identifier. - A distinct code or number assigned by a logistics service provider to identify an individual, entity, document, item, or shipment within a specific operational or shipment tracking system.

3.16. Weighing or Measuring System. - A device or combination of devices, including equipment and software, used to determine or record the weight, measure, quantity, dimensions, volume, density, or other measurable attribute of freight, as approved by the jurisdiction where the system is used.

Section 4. Enforcing Official: Rules and Regulations

The Director is authorized to:

(a) enforce the provisions of this Act;

(b) issue reasonable regulations for the enforcement of this Act that shall have the force and effect of law; and

(c) adopt rules that include, but are not limited to, requirements for:

(1) freight quote documentation and related shipment information used to determine shipment charges, including requirements for accurate information provided by a shipper, logistics service provider, or other responsible party;

(2) shipment weighing, measuring, quantity, dimensions, volume, density, and classification practices related to shipment representations, documentation, or charges;

(3) inspection certificates and related shipment documentation;

(4) recordkeeping and record retention;

(5) access to records by the Director or authorized agents;

(6) correction disclosures when shipment charges or shipment documentation are affected by corrected weight, measure, quantity, dimensions, volume, density, classification, rounding method, or related shipment information;

(7) use of approved weighing, measuring, or automated measuring systems; and

(8) information required on bills of lading, waybills, freight quotes, or other shipping documents.

Section 5. Required Compliance

(a) Any person or entity subject to this Act shall comply with this Act and any regulation promulgated under this Act.

(b) Transportation Contracts and Commercial Terms. - Nothing in this Act establishes, regulates, or requires a transportation rate, discount, tariff, freight classification, accessorial charge, or other commercial term of a transportation contract. No transportation contract, tariff, bill of lading, arbitration agreement, or other private agreement shall limit, waive, conflict with, or excuse compliance with this Act or any regulation promulgated under this Act, including requirements concerning accurate shipment representations, required records, correction documentation, access to records, or enforcement by the Director or an authorized agent.

Section 6. Records and Documentation

Any person or entity subject to this Act shall make, keep, and preserve records and documentation as required by the Director by regulation. Required records and documentation shall be made available for inspection by the Director or authorized agent in the manner prescribed by regulation.

Section 7. Prohibited Acts

The following acts are prohibited, subject to the clarification in subsection (i):

(a) violating any provision of this Act or any regulation promulgated under this Act;

(b) knowingly or with intent to defraud providing false or misleading shipment information, whether oral, written, electronic, or otherwise recorded;

(c) knowingly or with intent to defraud providing a false commodity description, weight, measure, quantity, dimensions, volume, density, classification, shipment identifier, or related shipment representation;

(d) providing incomplete, false, or misleading information for a freight quote, bill of lading, waybill, estimate, or other shipping document when the information affects the shipment charge, classification, weight, measure, quantity, dimensions, volume, density, or related shipment representation;

(e) failing to make, keep, preserve, or provide records or documentation required under this Act or any regulation promulgated under this Act;

(f) hindering or obstructing in any way the Director or an authorized agent in the performance of official duties under this Act;

(g) using or having in possession a weighing or measuring system, or any component of such system, that has been designed, modified, or used to facilitate fraud, or that has not been approved for commercial use by a weights and measures agency or official, or other authorized regulatory authority having jurisdiction;

(h) using a reweigh, remeasure, reclassification, density determination, or other correction process in a manner that selectively applies, suppresses, disregards, or withholds corrected shipment information based on whether the result increases or decreases a shipment charge; and

(i) for household goods shipments subject to 49 CFR Part 375, nothing in this section shall be construed to prohibit a non-binding estimate permitted under federal law. Any such estimate, freight quote, or related shipment documentation remains subject to applicable federal requirements and shall not contain false, misleading, incomplete, or inaccurate information required to be disclosed.

Section 8. Civil Penalties

8.1. Assessment of Penalties. - Any person or entity who by themselves, by their servant or agent, or as the servant or agent of another person or entity commits any of the acts enumerated in Section 7. Prohibited Acts may be punished for the violation with a written warning and/or assessed by the _____ a civil penalty, as deemed appropriate upon consideration of the nature, circumstances, extent, gravity of the violation, and history of prior offenses.

(a) a warning or fine of not less than $_____ nor more than $_____ for a first violation;

(b) a warning or fine of not less than $_____ nor more than $_____ for a second violation within _____ from the date of the first violation; and

(c) a fine of not less than $_____ nor more than $_____ for a third violation within _____ from the date of the first violation.

8.2. Administrative Hearing. - Any person or entity subject to a civil penalty shall have a right to request an administrative hearing within _____ days of receipt of the notice of the penalty. The Director or their designee shall be authorized to conduct the hearing after giving appropriate notice to the respondent. The decision of the Director shall be subject to appropriate judicial review.

8.3. Collection of Penalties. - If the respondent has exhausted their administrative appeals and the civil penalty has been upheld, the respondent shall pay the civil penalty within _____ days after the effective date of the final decision. If the respondent fails to pay the penalty, a civil action may be brought by the Director in any court of competent jurisdiction to recover the penalty. Any civil penalty collected under this Act shall be transmitted to _____.

Section 9. Criminal Penalties

9.1. Misdemeanor. - Any person or entity who by themselves, by their servant or agent, or as the servant or agent of another person or entity commits any of the acts enumerated in Section 7. Prohibited Acts or violates any other provision of this Act shall be guilty of a Class _____ misdemeanor and upon conviction shall be punished by a fine not less than $_____ nor more than $_____, or by imprisonment for not less than _____ nor more than _____, or both fine and imprisonment.

9.2. Felony. - Any person or entity who by themselves, by their servant or agent, or as the servant or agent of another person or entity intentionally commits any of the acts enumerated in Section 7. Prohibited Acts or repeatedly violates any other provision of this Act shall be guilty of a Class _____ felony and upon conviction shall be punished by a fine not less than $_____ and/or by imprisonment for not less than _____ nor more than _____.

Section 10. Restraining Order and Injunction

The Director is authorized to apply to any court of competent jurisdiction for a restraining order, or a temporary or permanent injunction, restraining any person from violating any provision of this Act.

Section 11. Validity of Prosecutions

Prosecutions for violation of any provision of this Act are declared to be valid and proper notwithstanding the existence of any other valid general or specific Act of this state dealing with matters that may be the same as or similar to those covered by this Act.

Section 12. Severability Provision

If any provision of this Act is declared unconstitutional, or the applicability thereof to any person or circumstance is held invalid, the constitutionality of the remainder of the Act and the applicability thereof to other persons and circumstances shall not be affected.

Section 13. Repeal of Conflicting Laws

All laws and parts of laws contrary to or inconsistent with the provisions of this Act, and specifically _____, are repealed insofar as they might operate in the future; but as to offenses committed, liabilities incurred, and claims now existing thereunder, the existing law shall remain in full force and effect.

Section 14. Citation

This Act may be cited as the "Shipment Act of _____."

Section 15. Effective Date

This Act shall become effective on _____.

Previous Status:

2026: Assigned to the Uniform Shipping Law Task Group – Language Changes
2025: Assigned to the Uniform Shipping Law Task Group
2024: Assigned to the Uniform Shipping Law Task Group

Original Justification:

Current shipping practices may result in incorrect overcharges and misleading pricing. It has been documented through investigations that carriers or freight brokers have incorrectly billed shippers on goods shipped. Documentation

provided by carriers to both shippers and weights and measures officials lack relevant information needed to fully investigate complaints within the shipping industry.

Carriers may have language in their contracts that inform the shipper of possible audits of their shipped goods and subsequent correction and audit fees.

The submitter requested Voting status in 2024.

Comments in Favor:

Regulatory:

- NCWM Interim 2026: Seven weights and measures officials supported the item and recommended that it remain Assigned.

Industry:

- None

Advisory:

- NCWM Interim 2026: The representative from NIST OWM supported keeping the item assigned to the Work Group.

Comments Against:

Regulatory:

- None

Industry:

- One representative from Industry voiced that the item is not finished and needs clarity.

Advisory:

- None

Neutral Comments:

Regulatory:

- NCWM Interim 2026: Multiple weights and measures officials recommended maintaining this item as Assigned.

Industry:

- None

Advisory:

- NCWM Interim 2026: The Work Group Chair recommended maintaining this item as Assigned.

Item Development:

NCWM 2026 Annual: This item remains assigned to the Uniform Shipment Law Task Group, as it is not yet fully developed. The Task Group Chair, Mr. Miland Kofford informed the Committee after the Annual Meeting that they have an updated language of the proposal and requested the Committee to include it in the Annual Report for membership consideration. The latest language is shown above under "Item Under Consideration".

Contact: Miland Kofford
Uniform Shipment Law Task Group Chair
mkofford@utah.gov

NCWM 2026 Interim: This item continues to be assigned to the Task Group as it is not yet fully developed. The Item under consideration reflects new language provided by the Task Group.
NCWM 2025 Annual: The Item is Assigned so the Committee heard comments only from the Task Group Chair Mr. Miland Kofford. Mr. Kofford told the Committee that the task group continues working on and developing this item.

The task group has submitted new language for this item and is available on the NCWM website under supporting documents dated July 9, 2025. The Committee has not reviewed or considered this language.

NCWM 2025 Interim: The Committee received a revision of the proposal during the NCWM 2025 Interim meeting. It appears above in this report and is the version being considered. The previous version can be found in NCWM 2025 Publication 15.

During the 2025 Interim open , the Committee heard from representatives of the shipping industry that they were in general support of this item but had some suggestions for the task group to consider.

For this reason, and because changes were made to the item during the 2025 Interim, the Committee has maintained the Assigned status for this item. This will allow interested parties to review the most recent version of the item and for the Task Group to solicit input from industry stakeholders and other interested parties.

NCWM 2024 Annual: The Committee took no action and did not make any changes to this item.

NCWM 2024 Interim: The submitter made a presentation on this item and the Committee heard support for the item, but recognizing it is not fully developed will request to assign it to the newly formed Uniform Shipment Law Task Group.

Regional Associations' Comments:

CWMA 2026 Interim Meeting:

One regulator voiced in favor of this proposal. A member of the task group provided a summary of the committee's actions.

The committee recommends this item remain assigned.

WWMA 2026 Annual Meeting:

Mr. Miland Kofford (Chair of the Uniform Shipment Law Task Group) stated during open hearings that the work group had made great progress in developing this law and that he believed it was ready to move forward to a vote. He was pleased with what the committee had done and recommended VOTING status.

Based on the comments heard during open hearings the WWMA L&R Committee recommends VOTING status for this item.

NEWMA 2026 Interim Meeting:

A Regulator from NH stated with the support of the NCWM chair, the Uniform Shipment Law Task Group was allowed to review, discuss, and propose a Uniform Shipment Regulation. With that support, the Task Group removed some of the regulatory language from the original OTH-24.1 Uniform Shipment Law proposal and the task group created OTH-27.1. The regulator from NH believes that the Uniform Shipment Law proposal is ready and should be assigned a Voting status

A Regulator from NJ stated this item is fully developed, has merit and recommends Voting status.

A Regulator from NY concurs with Voting and thanks the TG.

A Regulator from PA supports a Voting statues

Another regulator from NY requested that for the following sections, could we align the proposal terminology with existing HB130 language?

Section 4.(c).**(5) access to records by the Director or authorized agents;**
End of Sec.5.(b) - … **access to records, or enforcement by the Director or an authorized agent.**
Last sentence of Sec.6.- … **Required records and documentation shall be made available for inspection by the Director or authorized agent in the manner prescribed by regulation**
Sec.7 Prohibited acts, part (f) - **hindering or obstructing in any way the Director or an authorized agent in the performance of official duties under this Act;**
Last sentence of Sec. 7 prohibited acts, part (g) - … **or that has not been approved for commercial use by a weights and measures agency or official, or other authorized regulatory authority having jurisdiction.**
Sec.8.2 – "**The Director or their designee shall be authorized…"**
Sec.10 – "**The Director is authorized…"**

Throughout Handbook 130, the phrase "Director, or his/her authorized agent" is used for other model laws and regulations. As the proposal is currently worded, the "authorized agent" is not explicitly designated or appointed by the Director. In the W&M Law proposal, specific authority across sections is unclear. Additionally, the definition of "Director" in Section 3.5 could encompass other officials (e.g., Director of Consumer Affairs) rather than strictly the Weights and Measures Director. The OTH-27.1 proposal vests sole authority for everything with the Director, but current phrasing in that proposal also fails to properly tie the "authorized agent" back to that role.

NY suggests we use the existing phrase "Director, or his/her authorized agent", as used throughout HB130. This recommendation is for both proposals OTH-24.1 and OTH-27.1.

The regulator from NH, whom is also part of the task group likes the change and will provide the information to the task group and reintroduce at the NCWM Interim meeting.

The committee recommends an assigned status.

SWMA 2026 Annual Meeting:

No comments.

SWMA Laws and Regulations committee recommends this item to be given assigned status.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

OTH-27.1 X. Uniform Shipment Regulation

Source:
Uniform Shipment Law Task Group

Purpose:
Add a new Uniform Shipment Regulation to NIST Handbook 130, Chapter IV, Uniform Regulations, to establish uniform operating requirements for shipment-related weighing, measuring, remeasurement, reclassification, correction documentation, record retention, access to records, and related enforcement procedures for freight shipments in commercial trade.

Item under Consideration:
Adopt a new Uniform Shipment Regulation in NIST Handbook 130, Chapter IV - Uniform Regulations, as follows:

Uniform Shipment Regulation

Section 1. Definitions

As used in this regulation:

1.1. Bill of Lading (BOL) / Waybill. - A legal instrument or shipping document used in the transportation and shipment industries that lists the freight being shipped and the terms under which it will be delivered.

1.2. Carrier. - A person engaged in handling, transporting, or delivering freight as part of a commercial transaction.

1.3. Classification. - A shipment-related class, category, code, or designation assigned to freight when based on or affected by measurable shipment information or related shipment documentation. Classification includes a determination or change that relies on weight, measure, quantity, dimensions, volume, density, commodity description, packaging, handling unit, or other shipment information used to determine a shipment representation or shipment charge. Classification does not include the establishment of freight rates, tariffs, or general freight classification systems.

1.4. Commodity. - An article of commerce, especially when delivered for shipment, including any good, product, material, cargo, raw material, agricultural product, livestock or livestock product, metal, energy product, or other article of trade.

1.5. Director. - The of the Department of .

1.6. Freight. - Goods, commodities, or cargo transported by truck, train, ship, or aircraft for commercial purposes.

1.7. Freight Quote. - Documentation provided by a carrier, logistics service provider, or other responsible party that states the cost of transporting freight based on shipment information, including weight, measure, quantity, dimensions, volume, density, classification, distance, service level, or shipping method.

1.8. Goods. - Physical, movable, tangible items, such as raw materials, parts, and finished products, transported by truck, train, ship, or aircraft.

1.9. Handling Unit. - A single item or group of items that are packaged together and handled as a single unit throughout the shipping process.

1.10. Inspection Certificate. - A document used to signify that shipped freight has been inspected concerning weight, measure, quantity, dimensions, volume, density, classification, or related shipment information.

1.11. Logistics Service Provider. - A person that offers logistics-related services such as transportation, warehousing, freight forwarding, or supply chain coordination on behalf of another party. This includes, but is not limited to, a carrier, third-party logistics provider, freight forwarder, broker, shipper, or broker agent.

1.12. Person. - Any natural individual, corporation, partnership, association, organization, or other legal entity.

1.13. Shipment. - A quantity of goods, freight, or commodities shipped with a logistics service provider.

1.14. Shipper. - A person that sends or requests goods, freight, or commodities using a logistics service provider.

1.15. Unique Identifier. - A distinct code or number assigned by a logistics service provider to identify an individual, entity, document, item, or shipment within a specific operational or shipment tracking system.

1.16. Weighing or Measuring System. - A device, equipment, software, or combination thereof used to determine, calculate, record, or represent the weight, measure, quantity, dimensions, volume, density, or other measurable attribute of freight, as approved or authorized by the jurisdiction where the system is used.

Section 2. Application

(a) This regulation applies to all logistics service providers and shippers engaged in the shipment, handling, measurement, or documentation of freight for commercial purposes.

(b) This regulation establishes minimum standards for weighing and measuring practices, provides requirements for recordkeeping and documentation, and supports enforcement by the appropriate regulatory authority under applicable law.

Section 3. Regulatory Authority and Rulemaking

The Director is authorized to enforce this regulation and adopt rules consistent with this regulation, including requirements for:

(a) freight quote documentation and related shipment information used to determine shipment charges, including accurate information provided by the shipper, carrier, logistics service provider, or other responsible party;

(b) procedures for weighing, measuring, determining quantity, dimensions, volume, density, and documenting classification changes when the classification is based on or affected by measurable shipment information or related shipment documentation;

(c) correction notice disclosures when shipment charges or shipment documentation are affected by corrected weight, measure, quantity, dimensions, volume, density, classification, or other shipment information used to determine the charge;

(d) required recordkeeping and record retention for freight quotes, bills of lading, waybills, inspection certificates, correction notices, reweigh or remeasure records, zero-load or ready indication records, when applicable, and related shipment records, including records required under 49 CFR Part 379 where applicable; and

(e) access to records needed to determine compliance.

Section 4. Weighing and Measuring Practices and Equipment Used

(a) All regulated parties shall comply with applicable requirements of NIST Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices," for commercial weighing and measuring devices.

(b) Weighing and measuring devices, measuring systems, and related software used to determine, calculate, record, or represent shipment attributes shall be approved or authorized by the Director, a weights and measures official, NTEP where applicable, or other authorized regulatory authority. Installation, service, repair, or placement into service may be performed by an authorized service agent where permitted by the Director. Where no applicable NTEP approval exists, the device, system, or software shall be used in accordance with requirements established by the Director.

(c) Each reweigh or automated remeasure, when applicable, shall be recorded in the system, including the as-found zero-load or ready indication of the weighing or measuring device, even if an inspection certificate is not issued.

(d) When shipment weight, measure, quantity, dimensions, volume, or density is used to determine shipment charges, the shipment shall be weighed or measured in its final packaged state, including packaging, pallets, containers, or other components included in the shipment as presented for transportation.

(e) The Director may issue technical requirements for weighing, measuring, determining quantity, dimensions, volume, or density involving perishable commodities, including dairy products, where industry practices or equipment differ from general freight. Any classification change based on or affected by measurable shipment attributes shall be documented.

Section 5. Inspection Certificate - Required Entries

(a) The documentation, when properly completed and signed, including digital signatures, shall be prima facie evidence of the accuracy of the recorded results and procedures followed.

(b) The recorded information to be provided on the documentation shall be prescribed by the Director and will include, but not be limited to, the following:

(1) employee identifier of the individual or individuals who conducted the inspection;

(2) date and time of the inspection;

(3) identifying information for the issuing terminal or service center, including physical address and contact information;

(4) unique identifier of the weighing or measuring device used to conduct the inspection;

(5) recorded reweigh or remeasure value displayed or generated by the weighing or measuring device or system, including the as-found zero-load or ready indication when applicable, for each handling unit;

(6) indicated classification code and commodity description related to freight class for each handling unit or shipment when associated with a change in weight, measure, quantity, dimensions, volume, or density;

(7) unique shipment identifier and bill of lading, where applicable; and

(8) name and address of the shipper from the point of origin.

Section 6. Record Retention and Access

(a) All inspection certificates shall be retained for two (2) years.

(b) Required records shall be made available within 48 hours of request during normal business hours.

(c) Records may include inspection certificates, bills of lading, waybills, freight quotes, correction notices, reweigh or remeasure records, and related shipment documentation required by this regulation.

Section 7. Correction Notices and Reweigh or Remeasure Documentation

(a) When a shipment is reweighed, remeasured, reclassified, or otherwise corrected in a manner that affects shipment documentation, classification, or charges, the correction shall be documented.

(b) Correction documentation shall identify the shipment, the corrected weight, measure, quantity, dimensions, volume, density, classification, rounding method, or other shipment information used to determine the charge, the basis for the correction, and the party making the correction.

(c) Required correction notice disclosures shall be provided by the carrier, logistics service provider, or other responsible party as required by the Director.

(d) When a shipment charge is based on dimensional weight, volumetric weight, rounding, a conversion factor, or a similar charge-related method, the method used shall be identified in the freight quote, shipment documentation, correction documentation, or other related record as required by the Director.

(e) Nothing in this section requires a charge adjustment where the applicable charge is fixed and is not determined, calculated, validated, or adjusted using the corrected shipment attribute. A person asserting that a charge is fixed and independent of the corrected shipment attribute shall maintain records sufficient to demonstrate that the attribute was not used to determine, validate, or adjust the charge.

Section 8. Commercial Terms and Classification Limitation

(a) Nothing in this regulation establishes, regulates, or requires freight rates, tariff policies, flat rates, minimum charges, zone-based pricing, or general freight classification determinations.

(b) Shipment information, measurement values, correction documentation, and related records used to determine shipment charges or shipment representations remain subject to this regulation.

Section 9. Prohibited Acts

The following acts are prohibited, subject to the clarification in subsection (i):

(a) knowingly submitting false or misleading shipment data;

(b) providing false, misleading, incomplete, or inaccurate information affecting a freight quote, shipment charge, classification change, bill of lading, waybill, correction notice, invoice, or other shipping document;

(c) failing to make, keep, preserve, or provide records required by this regulation;

(d) obstructing regulatory enforcement;

(e) using any unapproved, altered, or fraudulent weighing device, measuring device, measuring system, or related software, or using any such device, system, or software in a manner that facilitates fraud or inaccurate shipment representations;

(f) violating any provision of this regulation or any rule adopted under this regulation;

(g) using a reweigh, remeasure, reclassification, density determination, or other correction process in a manner that selectively applies, suppresses, disregards, or withholds corrected shipment information based on whether the result increases or decreases a shipment charge;

(h) applying a correction threshold, rounding method, documentation requirement, or other condition to an upward charge adjustment that is not applied on substantially equivalent terms to a downward charge adjustment involving the same shipment attribute and applicable rate basis; and

(i) for household goods shipments subject to 49 CFR Part 375, nothing in this section shall be construed to prohibit a non-binding estimate permitted under federal law. Any such estimate or related shipment documentation remains subject to applicable federal requirements and shall not contain false, misleading, incomplete, or inaccurate information required to be disclosed.

Section 10. Enforcement

(a) Violations of this regulation may be subject to civil penalties, criminal penalties, injunctive relief, or other enforcement action as authorized by the Uniform Shipment Law and applicable state law.

(b) Administrative hearing and judicial review procedures shall be available as provided by applicable law.

Section 11. Severability

If any part of this regulation is deemed invalid, the remainder shall remain in effect.

Section 12. Effective Date

This regulation shall take effect on following adoption by the appropriate authority.

Previous Status:
2027: New Proposal

Original Justification:
Background and Need: This proposal is submitted for national consideration as a model regulation to establish uniform shipment-related weights and measures requirements for freight shipments in commercial trade. The proposal is intended to coordinate with the proposed Uniform Shipment Law and provide the operating requirements needed for consistent administration and enforcement.

Shipment charges and shipment representations may be affected by weight, measure, quantity, dimensions, volume, density, classification, reweighs, remeasurements, correction notices, and related shipment documentation. A uniform regulation would assist jurisdictions, carriers, logistics service providers, shippers, and other responsible parties by establishing consistent requirements for shipment documentation, correction records, inspection certificates, record retention, and access to records.

National Importance: A uniform approach is nationally important because freight shipments commonly move across jurisdictional boundaries, and shipment charges or shipment representations may rely on measurement values, documentation, or correction processes generated at different points in the transportation chain. Consistent model requirements would support transparency, accountability, and regulatory consistency for jurisdictions and regulated parties while allowing continued Task Group, regional, stakeholder, and legal review.

Boundary of the Proposal: The proposal is intended to promote transparency, fairness, and accountability in the weighing, measuring, remeasurement, correction, and documentation of freight shipments in commercial trade. The draft regulation is not intended to establish, regulate, or require freight rates, tariff policies, flat rates, minimum charges, zone-based pricing, or general freight classification determinations. Instead, it focuses on shipment information, measurement values, correction documentation, and related records when those items are used to determine shipment charges or shipment representations. The proposed regulation recognizes that freight transportation may involve private contracts, tariffs, bills of lading, and federal transportation requirements. The regulation is drafted to preserve the distinction between commercial pricing terms and weights and measures enforcement. It does not establish or regulate rates, discounts, tariffs, classifications, accessorial charges, or other commercial terms. It addresses the accuracy,

documentation, correction, retention, and availability of shipment information and measurement values when used in shipment-related representations or charges.

Summary of Proposed Requirements:

- freight quote documentation and related shipment information;
- weighing, measuring, quantity, dimensions, volume, and density procedures;
- classification changes when based on or affected by measurable shipment information or related shipment documentation;
- correction notice disclosures;
- inspection certificate entries;
- record retention and access;
- final packaged state;
- dimensional weight, volumetric weight, rounding methods, conversion factors, and related records; Uniform Shipment Regulation Form 15 Submission Language — August 14, 2026 • commercial terms and classification limitation;
- fixed-charge clarification where a corrected shipment attribute is not used to determine, validate, or adjust the charge;
- prohibited acts involving false information, incomplete information, selective corrections, and unequal treatment of upward and downward charge adjustments; and
- clarification that non-binding household goods estimates permitted under federal law are not prohibited, while required shipment documentation remains subject to applicable federal requirements.

Legal Review Request Legal review is requested regarding the interaction of this proposal with applicable federal transportation law, private transportation contracts, tariffs, bills of lading, arbitration agreements, and federal recordkeeping requirements, including 49 CFR Part 379 and 49 CFR Part 375 where applicable. Legal review is also requested regarding the proposed language on classification, non-binding household goods estimates, selective corrections, substantially equivalent treatment of upward and downward charge adjustments, fixed-charge clarification, record access, and enforcement authority.

Possible Opposing Arguments:

- There may be concern that the proposed regulation could be viewed as regulating transportation rates, tariffs, freight classifications, or private contract terms. The proposal addresses this concern by clarifying that the regulation does not establish, regulate, or require freight rates, tariff policies, flat rates, minimum charges, zone-based pricing, or general freight classification determinations. Shipment information, measurement values, correction documentation, and related records used to determine shipment charges or shipment representations remain subject to the regulation.

- There may be concern that the regulation could impose additional recordkeeping or operational burdens on carriers, logistics service providers, shippers, or other responsible parties. The Task Group recognizes that this issue should be considered during regional, national, stakeholder, and legal review.

- There may be concern that fixed-charge transportation arrangements may not require adjustment when a corrected shipment attribute does not affect the charge. The proposal addresses this by including a fixed-charge clarification, while requiring records sufficient to demonstrate that the corrected attribute was not used to determine, validate, or adjust the charge.

- There may be concern that non-binding household goods estimates permitted under federal law could be affected by the prohibited acts language. The proposal addresses this concern by clarifying that household goods shipments subject to 49 CFR Part 375 may use non-binding estimates permitted under federal law, while still requiring that such estimates and related shipment documentation comply with applicable federal requirements and not contain false, misleading, incomplete, or inaccurate information required to be disclosed.

- There may be concern that the language addressing upward and downward charge adjustments may be viewed as affecting private commercial billing practices. The proposal limits this provision to correction thresholds, rounding methods, documentation requirements, or other conditions involving the same shipment attribute and applicable rate basis, and should be reviewed to ensure it remains within weights and measures authority.

Comments in Favor:

Regulatory:
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Industry:
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Advisory:
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Comments Against:

Regulatory:
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Industry:
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Advisory:
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Neutral Comments:

Regulatory:
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Industry:
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Advisory:
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Item Development:
New Proposal 2027

Regional Associations' Comments:
New Proposal 2027

CWMA 2026 Interim Meeting:

No comments were received.

The committee recommends a developing status.

WWMA 2026 Annual Meeting:

Mr. Miland Kofford (Chair of the Uniform Shipment Law Task Group) stated during open hearings that the work group determined too much was being put into a single "law" OTH-24.1 and requested NCWM broaden their scope to also develop a "regulation" OTH-27.1. The work group believed that the addition of the regulation will make it more useful

for some regulators. Mr. Kofford noted that the work group had put a lot of effort into this and welcomed comments on the item during the open hearings.

Mr. Kevin Schnepp (California Division of Measurement Standards) inquired if it would be practical to block OTH-24.1 and OTH-27.1.

Mr. Kofford agreed that blocking OTH-24.1 and OTH-27.1 would be practical.

Based on the comments heard during open hearings the WWMA L&R Committee recommends a VOTING status for this item. The committee further recommends that the NCWM L&R Committee consider blocking OTH-24.1 and OTH-27.1.

NEWMA 2026 Interim Meeting:

A Regulator from NJ stated this item is fully developed and has merit. NJ appreciates the TG taking the comments received that the law was too specific, modifying it, and creating this regulation as a companion, and recommends a Voting status

A Regulator from NH stated the task group took some of the previous language that we had in the Uniform Shipment Law proposal and created a separate Uniform Shipment Regulation. The task group has both regulators and industry on the task group and we have vetted the proposed language with everyone on the task group. NH believes that as a regulation will help regulators better follow-up on shipment complaints.

The comments heard from the NY regulator for OTH-24.1, were also applicable to the following sections of OTH-27.1.

- For Sec. 4.(b). NY suggests the following language:

Sec.4.(b) - …**shall be approved or authorized by the ~~Director,~~ Director, or his/her authorized agent, a weights and measures official, or NTEP where applicable.~~, or other authorized regulatory authority.~~ Installation, service, repair, or placement into service may be performed by an authorized service agent where permitted by the Director**

- Note: NY believes it is not an appropriate change for Sec. 5.(b).

The regulator from NH, whom is also part of the task group likes the suggested language change and will provide the information to the task group, and are a welcomed update to the proposal.

A Regulator from PA supports Voting status

SWMA 2026 Annual Meeting:

No comments.

SWMA Laws and Regulations committee has no recommendation to give for this item. No recommendations made in the proposal nor on the floor.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

OTH-07.1 D Fuels and Lubricants Subcommittee

Source:
NCWM Fuels and Lubricants Subcommittee (FALS)

Purpose:
Provide an update of the activities of this Subcommittee which works on direction from and reports to the L&R Committee. The mission of FALS is to assist the L&R Committee in the development of agenda items that affect Handbook 130, Uniform Fuels and Automotive Lubricants Inspection Law and Uniform Fuels and Automotive

Lubricants Regulation. The Subcommittee consists of regulators and associate members who have subject matter expertise in fuels and lubricants. The Subcommittee will be called upon to aid in the development, provide guidance, and help establish NCWM position on items concerning fuels and lubricants.

Item Development:
NCWM 2026 Annual: Vanessa Benchea, FALS Chair, reported on the FALS activities during the open hearings and provide a written report for the Committee. The report is included below.

Contact: Vanessa Benchea
Fuels and Lubricants Subcommittee Chair
Vanessa.Benchea@fdacs.gov

This report outlines the activities of the Fuels and Lubricants Subcommittee (FALS), which reports to and provides recommendations for the Laws and Regulations Committee.

FALS convened on Sunday, July 26, 2026, at the 2026 NCWM Annual Meeting in Philadelphia, Pennsylvania, with approximately 32 members and guests in attendance. The purpose of this meeting is to review items related to fuel and automotive fluid standards that appear on the L&R agenda, along with items of old and new business.

- Dr. Jenny Tabbert presented the latest language for FLR-26.1 7.2 that was developed from the focus group's previous meeting. After discussion amongst the membership, it was decided that some minor development and clarification was still needed. The latest language from this meeting will be distributed amongst FALS membership for any additional commentary with the hopes that the item can be presented as fully developed by the interim.

Original Submission:

7.2. Reproducibility Limits.

7.2.1. AKI Limits. – When determining the antiknock index (AKI) acceptance or rejection of a gasoline sample, the AKI reproducibility limits as outlined in the latest version of ASTM D4814, "Standard Specification for Automotive Spark-Ignition Engine Fuel," Appendix X1 shall be acknowledged for enforcement purposes.

7.2.2. Reproducibility. – The reproducibility limits of the standard test method used for each test performed shall be acknowledged for enforcement purposes, except as indicated in Section 2.2.1. Premium Diesel Fuel and Section 7.2.1. AKI Limits. No allowance shall be made for the precision of the test methods for aviation gasoline or aviation turbine fuels.
(Amended 2008)

7.2.2.1 Enforcement Action. - To avoid the exploitation of a test method's reproducibility limits by any regulated party, the Director may initiate enforcement action when several independent test results, of the same product sampled from the same source location at different times, are exceeding legal limits (such as specification values, posted values, certified values, or registered values). (Added 202X).

7.2.3. SAE Viscosity Grades for Engine Oils. – With the exception of the low-temperature cranking viscosity, all values required to define SAE Viscosity Grades, as defined in the latest version of SAE J300, "Engine Oil Viscosity Classification", are critical specifications as defined by the latest version of ASTM D3244, "Standard Practice for Utilization of Test Data to Determine Conformance with Specifications".
(Added 2008) (Amended 2021)

7.2.4. Dispute Resolution. – In the event of a dispute over a reported test value, the guidelines presented in the latest version of ASTM D3244, "Standard Practice for Utilization of Test Data to Determine Conformance with Specifications," shall be used to determine the acceptance or rejection of the sample.

~~7.2.5. — Additional Enforcement Action. — The Director may initiate enforcement action in the event that, based upon a statistically significant number of samples, the average test result for products sampled from the same source location is greater than the legal maximum or less than the legal minimum limits (specification value), posted values, certified values, or registered values.~~
~~(Added 2008) (Amended 2018)~~

Latest proposal:

7.2. Reproducibility Limits.

7.2.3. AKI Limits. – When determining the antiknock index (AKI) acceptance or rejection of a gasoline sample, the AKI reproducibility limits as outlined in the latest version of ASTM D4814, "Standard Specification for Automotive Spark-Ignition Engine Fuel," Appendix X1 shall be acknowledged for enforcement purposes.

7.2.4. Reproducibility. **~~— The reproducibility limits of the standard test method used for each test performed shall be acknowledged for enforcement purposes, except as indicated in Section 2.2.1. Premium Diesel Fuel and Section 7.2.1. AKI Limits. No allowance shall be made for the precision of the test methods for aviation gasoline or aviation turbine fuels.~~**

(a) The reproducibility limits of the standard test method used for each test performed shall be acknowledged for enforcement purposes, except as indicated in Section 7.2.1. AKI Limits. No allowance shall be made for the precision of the test methods for aviation gasoline or aviation turbine fuels. (Amended 20xx)

(b) Notwithstanding the provisions in 7.2.2. (a), the Director may initiate enforcement action when several independent test results of the same product, sampled from the same source location on separate occasions following new product deliveries, are greater than the maximum or less than the minimum specification limits, posted values, certified values, or registered values.

8.2.1 SAE Viscosity Grades for Engine Oils. – With the exception of the low-temperature cranking viscosity, all values required to define SAE Viscosity Grades, as defined in the latest version of SAE J300, "Engine Oil Viscosity Classification", are critical specifications as defined by the latest version of ASTM D3244, "Standard Practice for Utilization of Test Data to Determine Conformance with Specifications". (Added 2008) (Amended 2021)

8.2.2 Dispute Resolution. – In the event of a dispute over a reported test value, the guidelines presented in the latest version of ASTM D3244, "Standard Practice for Utilization of Test Data to Determine Conformance with Specifications," shall be used to determine the acceptance or rejection of the sample.

~~8.2.3 — Additional Enforcement Action. — The Director may initiate enforcement action in the event that, based upon a statistically significant number of samples, the average test result for products sampled from the same source location is greater than the legal maximum or less than the legal minimum limits (specification value), posted values, certified values, or registered values.~~
~~(Added 2008) (Amended 2018)~~

- Highlights and updates from ASTM D02 were provided, specifically by Marilyn Herman for Subcommittee A (Gasoline and Oxygenated Fuels) and by Randy Jennings for Subcommittee E (Burner, Diesel, and Non-Aviation Gas Turbine Fuels), and J (Aviation Fuels). Highlights of note included the newest version of ASTM D4814 was approved July 1, 2026, continued efforts in streamlining one manageable diesel fuel standard, the ongoing investigation into the root cause of the premature plugging of filters that retail facilities are continuing to deal with and that ASTM D02 will be hosting their meeting in Europe in 2029.

- There was some follow up commentary to Henry Walczak's request for a template that could manage and align fuel specifications across the States. Dr. Jenny Tabbert mentioned that Colorado had provided this information and encouraged others to follow suite.

- There was discussion concerning the proper labeling of fuel at retail dispensers, specifically E15, and how some states are approaching this effort.

Detailed minutes of this meeting will be distributed to FALS membership, including attachments with all presentations from the meeting.

NCWM 2026 Interim: Ms. Vanessa Benchea, FALS Chair, reported on the FALS activities during the open hearings and provide a written report for the Committee.

Regional Associations Comments:

CWMA 2026 Interim Meeting:

No comments were received.

The committee recommends a developing status.

WWMA 2026 Annual Meeting:

No comments were heard during open hearings.

The WWMA L&R Committee appreciates the work of the Fuels and Lubricants Subcommittee and recommends this item remain DEVELOPING.

NEWMA 2026 Interim Meeting:

No comments were heard from the floor.

The committee recommends a developing status.

SWMA 2026 Annual Meeting:

No comments.

SWMA Laws and Regulations committee recommends this item remain developing status.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

OTH-11.1 D Packaging and Labeling Subcommittee

Source:
NCWM Packaging and Labeling Subcommittee (PALS)

Purpose:
Provide an update of the activities of this Subcommittee which reports to the L&R Committee. The mission of PALS is to assist the L&R Committee in the development of agenda item, NCWM positions and new standards related to packaging and labeling. The Subcommittee will also be called upon to provide important and much needed guidance to the regulatory and consumer packaging communities on difficult questions.

PALS will report to NCWM L&R Committee. The Subcommittee is comprised of a Chair, eight voting members, and anyone interested in packaging and labeling standards.

Original Justification:
This item is to provide a report on the activities of the Packaging and Labeling Subcommittee which reports and provides recommendations to the Laws and Regulations Committee.

For more information or to provide comments, please contact the PALS Chair:

Mr. Chris Guay
CGGT
513-652-6597, guay.cb@gmail.com

Item Development:
NCWM Annual 2026: Mr. Chris Guay representing PALS updated the Committee on PALS activities and provided a presentation on the best practice document Quantity-Related Expressions on a Principal Display Panel that PALS has developed and submitted to the Board of Directors for review and which can be found at the end of this report.

NCWM 2026 Interim: Mr. Mike Smith, New York representing PALS updated the Committee on PALS activities and provided the following:

The Packaging and Labeling Subcommittee met on Sunday January 11, 2026. We shared and discussed the Draft Best Practice Document called, "Quantity related expressions on a principal display panel". This document will provide guidance to manufacturers and regulators alike regarding the statements which appear in addition to a proper and correct Declaration of Net Quantity. We hope to have this document completed by March and plan to submit this to the NCWM Board shortly thereafter so that an expert panel can be established to review and publish as an NCWM best practice publication. PALS is optimistic that this document will be completed for the NCWM body, by the annual meeting in Philadelphia.

Regional Associations' Comments:

CWMA 2026 Interim Meeting:

No comments were received.

The committee recommends a developing status.

WWMA 2026 Annual Meeting:

No comments were heard during open hearings.

The WWMA L&R Committee appreciates the work of the Packaging and Labeling Subcommittee and recommends this item remain DEVELOPING.

NEWMA 2026 Interim Meeting:

A regulator from NY that is part of the PALS committee stated that the NCWM committee that oversees this PALS document, has asked our subcommittee whether it should be considered a "Guidance" document, "Recommended Practice" document or "Recommended Best Practice" document? It was pointed out that:

- Two of the links (from the resources page) take the user to FDA guidance documents – "Guidance document for Industry: Food Labeling Guide" and "FDA- Cosmetic Labeling Guide".

Therefore, the PALS committee considers it a "guidance document" as well.

A Regulator from NH stated they have been on committee meeting and 100% supports the work and supports the term "guidance document".

The committee recommends a developing status.

SWMA 2026 Annual Meeting:

Loren Minnich speaking on his behalf encouraged everyone in the body to review the Appendix A draft guideline for label declaration and commented that he is concerned this document may conflict with NIST Handbook 130 and federal law and a thorough review by regulators is highly advised.

SWMA Laws and Regulations committee recommends this item remain developing status.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

ITEM BLOCK 1 (B1) PREMIUM DIESEL FUEL

Source:
Colorado Division of Oil and Public Safety

Purpose:
Add an alternative method to determine the cetane number of premium diesel fuels.

Original Justification:
ASTM D8183, "Test Method for Determination of Indicated Cetane Number (ICN) of Diesel Fuel Oils using a Constant Volume Combustion Chamber - Reference Fuels Calibration Method," is a proven, standardized approach that was officially incorporated as an alternative method for determining cetane number within ASTM D975, "Standard Specification for Diesel Fuel," in 2018. The National Conference on Weights and Measures (NCWM) should adopt ASTM D8183 as an alternative method for determining cetane number because it provides a faster, highly precise, and cost-effective measurement of fuel ignition quality that correlates directly—and without bias—to traditional engine tests.

Adopting this method offers significant operational and economic advantages. It drastically improves testing efficiency, completing analyses in roughly 10 minutes compared to the hours required by traditional engine tests, while also minimizing waste by requiring only 40 mL of fuel. Furthermore, this method eliminates the high maintenance costs and operational requirements associated with the traditional single-cylinder variable compression cetane engine (ASTM D613).

Technically, ASTM D8183 represents a modernization of fuel testing. It utilizes the same Primary Reference Fuels that define the historical cetane number scale, ensuring continuity with industry standards. Extensive inter-laboratory studies have confirmed that the method maintains accuracy with no statistical bias compared to standard engine testing. Additionally, it is well-equipped to handle modern fuel compositions, including conventional diesel, biodiesel blends, and premium diesel fuels enhanced with cetane improver additives.

Note: Appendix A. Index should be updated as the current reference to "cetane number" on page 191 is incorrect; it currently appears on pages 147, 186, and 190 of the NIST Handbook 130.

The submitter requests that this be an Assigned Item in 2027, referred to the Fuels and Lubricants Subcommittee.

B1: MOS-27.1 2.39.2. Premium Diesel Fuel.

Item under Consideration:
Amend the NIST Handbook 130 Uniform Regulation for the Method of Sale of Commodities as follows:

2.39.2. Premium Diesel Fuel. - All diesel fuels identified on retail dispensers as premium, super, supreme, or premier must conform to the following minimum requirements:

(a) Cetane Number. - A minimum cetane number of 47.0 as determined by the latest version of ASTM D613, "Standard Test Method for Cetane Number of Diesel Fuel Oil."

Note: ASTM D613, "Standard Test Method for Cetane Number of Diesel Fuel Oil" is the referee method; however, the following methods can be used to determine cetane number: the latest version of ASTM D6890, "Standard Test Method for Determination of Ignition Delay and Derived Cetane Number**"** (DCN) of Diesel Fuel Oils by Combustion in a Constant Volume Chamber"~~**; and,**~~ ASTM D7668, "Standard Test

Method for Determination of Derived Cetane Number (DCN) of Diesel Fuel Oils - Ignition Delay and Combustion Delay Using a Constant Volume Combustion Chamber Method~~.~~" **and ASTM D8183, "Test Method for Determination of Indicated Cetane Number (ICN) of Diesel Fuel Oils using a Constant Volume Combustion Chamber - Reference Fuels Calibration Method."**

Previous Status:
2027: New Proposal

Comments in Favor:

Regulatory:
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Industry:
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Advisory:
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Comments Against:

Regulatory:
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Industry:
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Advisory:
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Neutral Comments:

Regulatory:
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Industry:
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Advisory:
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Item Development:
New Proposal in 2027

Regional Associations' Comments:
New Proposal in 2027

CWMA 2026 Interim Meeting:

No comments were received.

Editorial change would be to change the spelling of DIESELL in the header.

The committee recommends a voting status.

WWMA 2026 Annual Meeting:

WWMA L&R Committee member Mr. Scott Wagner recused himself from the open hearings and working sessions for this item.

Mr. Steve Harrington (Oregon Weights & Measures) supports the efforts and agrees that the test methods used to determine cetane number for premium diesel fuel should be allowable. He expressed that he does not support keeping a list of these methods within NIST Handbook 130; ASTM already publishes and maintains the appropriate test methods (such as those referenced in section 5.1.10). His recommendation is to re-write or develop the item so that the Handbook simply references the applicable ASTM standards rather than enumerating the methods. Mr. Harrington recommended a DEVELOPING status.

Based on the comments heard during open hearings and the submitter's request that this item be assigned to the Fuels and Lubricants Subcommittee in their original justification, the WWMA L&R Committee recommends this item remain blocked with FLR-27.1 and that both items be ASSIGNED to the Fuels and Lubricants Subcommittee.

NEWMA 2026 Interim Meeting:

No comments were heard from the floor.

The committee gave no recommendation for this item.

SWMA 2026 Annual Meeting:

Submitter recommends this item be assigned.

Vanessa Benchea representing the state of Florida supports this item and recommends assigned status.

SWMA Laws and Regulations committee recommends this item to be given assigned status.

B1: FLR-27.1 2.2.1. Premium Diesel Fuel.

Item under Consideration:
Amend the NIST Handbook 130 Uniform Fuels and Automotive Lubricants Regulation as follows:

2.2.1. Premium Diesel Fuel. - All diesel fuels identified on retail dispensers as premium, super, supreme, or premier must conform to the following minimum requirements:

(a) **Cetane Number.** - A minimum cetane number of 47.0 as determined by the latest version of ASTM D613, "Standard Test Method for Cetane Number of Diesel Fuel Oil."

Note: ASTM D613, "Standard Test Method for Cetane Number of Diesel Fuel Oil" is the referee method; however, the following methods can be used to determine cetane number: the latest version of ASTM D6890, "Standard Test Method for Determination of Ignition Delay and Derived Cetane Number~~2~~ (DCN) of Diesel Fuel Oils by Combustion in a Constant Volume Chamber"**~~; and~~,** ASTM D7668, "Standard Test Method for Determination of Derived Cetane Number (DCN) of Diesel Fuel Oils - Ignition Delay and Combustion Delay Using a Constant Volume Combustion Chamber Method~~.~~" **and ASTM D8183, "Test Method for Determination of Indicated Cetane Number (ICN) of Diesel Fuel Oils using a Constant Volume Combustion Chamber - Reference Fuels Calibration Method."**

Previous Status:
2027: New Proposal

Comments in Favor:

Regulatory:
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Industry:
-

Advisory:
-

Comments Against:

Regulatory:
-

Industry:
-

Advisory:
-

Neutral Comments:

Regulatory:
-

Industry:
-

Advisory:
-

Item Development:
New Proposal in 2027

Regional Associations' Comments:
New Proposal in 2027

CWMA 2026 Interim Meeting:

The agenda should have listed this item number as B1: FLR 27.1 which is currently listed as FLR 27.2.

(NCWM has since corrected this error in the current version of Publication 15.)

The committee recommends a voting status.

WWMA 2026 Annual Meeting:

WWMA L&R Committee member Mr. Scott Wagner recused himself from the open hearings and working sessions for this item.

Mr. Steve Harrington (Oregon Weights & Measures) supports the efforts and agrees that the test methods used to determine cetane number for premium diesel fuel should be allowable. He expressed that he does not support keeping a list of these methods within NIST Handbook 130; ASTM already publishes and maintains the appropriate test methods (such as those referenced in section 5.1.10). His recommendation is to re-write or develop the item so that the Handbook simply references the applicable ASTM standards rather than enumerating the methods. Mr. Harrington recommended a DEVELOPING status.

Based on the comments heard during open hearings and the submitter's request that this item be assigned to the Fuels and Lubricants Subcommittee in their original justification, the WWMA L&R Committee recommends this item remain blocked with MOS-27.1 and that both items be ASSIGNED to the Fuels and Lubricants Subcommittee.

NEWMA 2026 Interim Meeting:

No comments were heard from the floor.

The committee gave no recommendation for this item.

SWMA 2026 Annual Meeting:

Submitter recommends this item be assigned.

Vanessa Benchea representing the state of Florida supports this item and recommends assigned status.

SWMA Laws and Regulations committee recommends this item to be given assigned status.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

ITEM BLOCK 2 (B2) ~~MTBE~~ETBE

Source:
Colorado Division of Oil and Public Safety

Purpose:
MTBE (methyl tertiary butyl ether) is a historical petroleum-based oxygenate that was phased out in the mid-2000s due to extensive groundwater contamination. This proposal aims to remove MTBE from NIST Handbook 130 and, where applicable, replace it with ETBE (ethyl tert-butyl ether), a currently used oxygenate.

Previous Status:
2027: New Proposal

Original Justification:
MTBE is a synthetic liquid compound that was used from 1979 to the mid-2000s as an octane booster and to help gasoline burn more cleanly. However, it was phased out nationwide because it is water-soluble, resists natural degradation, and contaminated groundwater and drinking water supplies, creating significant environmental and health concerns.

The phase-out of MTBE occurred in May 2006, driven by the Energy Policy Act of 2005. This legislation forced the change through two mechanisms: It eliminated the federal requirement for gasoline to contain oxygenates, removing the primary legal obligation to use MTBE, and Congress refused to grant oil companies immunity from groundwater contamination lawsuits, making the financial risk of using MTBE unsustainable.

Refiners made a massive, voluntary market shift to completely strip MTBE out of their production lines by the May 2006 deadline, replacing it universally with corn-based ethanol. Hence, MTBE is virtually absent from automotive gasoline nationwide. Keeping "MTBE" as the primary poster-child example for ether labeling on active consumer gas pumps is legally out of touch. ETBE is legally permitted by the EPA and serves as a highly popular alternative globally. While rare domestically due to corn ethanol's dominance, ETBE remains the most viable high-octane ether compound a modern specialized or imported fuel supply might actually contain.

MTBE is a massive groundwater contaminant because it dissolves easily in water and travels quickly. ETBE features a longer carbon-hydrogen chain, making it significantly less water-soluble and easier to biodegrade. Because NIST Handbook 130 serves as a "model law" adopted by state and local weights-and-measures authorities, updating the template wording implicitly encourages the adoption of safer chemical standards across state jurisdictions.

Replacing MTBE with ETBE aligns the model rules with modern engine requirements. ETBE provides an even higher octane boost than MTBE and features a lower vapor pressure, meaning refiners do not suffer a vapor pressure penalty when integrating it into specific premium or high-performance blends. If a state inspector comes across a specialized fuel blend utilizing ethers today, it is highly likely to be ETBE or TAME (tertiary-amyl methyl ether), not the phased-out MTBE. Updating the specific text provides field inspectors with clear, modern labeling templates that match actual laboratory findings.

The submitter acknowledges that, although phased out for standard road vehicles, MTBE is not universally prohibited across all specialized fuel blends, remaining technically permissible in specific off-road or aviation niche formulations.

Nevertheless, NIST Handbook 130 serves as a national rather than global standard, and the affected sections focus strictly on automotive gasoline-oxygenate blends rather than these off-road or aviation applications.

The submitter requests that this be an Assigned Item in 2027, referred to the Fuels and Lubricants Subcommittee.

B2: MOS-27.2 2.20.1. Method of Retail Sale, 2.20.2. Product Transfer Document (PTD) Requirements.

Item under Consideration:
Amend the NIST Handbook 130 Uniform Regulation for the Method of Sale of Commodities as follows:

2.20.1. Method of Retail Sale. – Type of Oxygenate must be Disclosed. – All automotive gasoline or automotive gasoline-oxygenate blends kept, offered, or exposed for sale, or sold at retail containing at least 1.5 mass percent oxygen shall be identified as "with" or "containing" (or similar wording) the predominant oxygenate in the engine fuel. For example, the label may read "contains ethanol" or "with ~~**MTBE**~~**ETBE**." The oxygenate contributing the largest mass percent oxygen to the blend shall be considered the predominant oxygenate. Where mixtures of only ethers are present, the retailer may post the predominant oxygenate followed by the phrase "or other ethers" or alternatively post the phrase "contains ~~**MTBE**~~**ETBE** or other ethers." In addition, gasoline-methanol blend fuels containing more than 0.3 % by volume methanol shall be identified as "with" or "containing" methanol. This information shall be posted on the upper 50 % of the dispenser front panel in a position clear and conspicuous from the driver's position in a type at least 12.7 mm (1/2 in) in height, 1.5 mm (1/16 in) stroke (width of type). (Amended 1996**, and 202X**)

2.20.2. Product Transfer Document (PTD) Requirements. – The retailer shall be provided information that complies with PTD requirements for gasoline, gasoline additives, and gasoline regulated blendstocks 40 C.F.R. § 1090.1110, at the time of delivery of the fuel, on product transfer documents such as an invoice, bill of lading, shipping paper, or other documentation. Additional declarations may be required for specific fuels:

(a) For fuels containing multiple oxygenates or oxygenates other than ethanol a declaration of the predominant oxygenate or combination of oxygenates present in concentrations sufficient to yield an oxygenate content of at least 1.0 % by volume in the fuel. Where mixtures of only ethers are present, the fuel supplier may identify either the predominant oxygenate in the fuel (i.e., the oxygenate contributing the largest mass percent oxygen) or alternatively, use the phrase "contains ~~**MTBE**~~**ETBE** or other ethers."

(b) For fuels containing more than 0.3 % by volume methanol a declaration shall be identified as "with" or "containing" methanol.

(Added 1984) (Amended 1985, 1986, 1991, 1996, 2014, 2022, ~~**and**~~ 2023**, and 202X**)

Comments in Favor:

Regulatory:
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Industry:

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Advisory:

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Comments Against:

Regulatory:

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Industry:

-

Advisory:

-

Neutral Comments:

Regulatory:

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Industry:

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Advisory:

-

Item Development:
New Proposal in 2027

Regional Associations' Comments:
New Proposal in 2027

CWMA 2026 Interim Meeting:

No comments were received.

The committee recommends a voting status.

WWMA 2026 Annual Meeting:
WWMA L&R Committee member Mr. Scott Wagner recused himself from the open hearings and working sessions for this item.

Mr. Steve Harrington (Oregon Weights & Measures) expressed general support for this item but questioned whether MTBE gasoline blending is permissible anywhere. He also wondered if there should be separate definitions and striking MTBE then adding ETBE rather than modifying the language. He recommended a DEVELOPING status to allow incorporation of the proposed changes.

Mr. Matthew Sheehan (Chevron) supported assigning this item to the Fuels and Lubricants Subcommittee and recommended using broader language to classify these products as Ether blends, helping to avoid similar issues in the future. He recommended a DEVELOPING status.

Mr. Steve Harrington (Oregon Weights & Measures) expressed his support for designating this item an ASSIGNED status.

Mr. Kevin Schnepp (California Division of Measurement Standards) also supported the recommendation to broaden the language to include Ether blends and an ASSIGNED status.

Based on the comments heard during open hearings and the submitter's request that this item be assigned to the Fuels and Lubricants Subcommittee in their original justification, the WWMA L&R Committee recommends this item remain blocked with FLR-27.2 and that both items be ASSIGNED to the Fuels and Lubricants Subcommittee.

NEWMA 2026 Interim Meeting:

No comments were heard from the floor.

The committee had no recommendation for this item.

SWMA 2026 Annual Meeting:

Submitter recommends this item be assigned.

Vanessa Benchea representing the state of Florida supports this item and recommends assigned status.

SWMA Laws and Regulations committee recommends this item to be given assigned status.

B2: FLR-27.2 **~~1.46. MTBE. Methyl tertiary-butyl ether, the chemical compound (CH3)3COCH3 [C5H12O].~~, 1.X. ETBE. – Ethyl tertiary-butyl ether, the chemical compound (CH3CH2OC(CH3)3 [C6H14O]., 3.2.4. Method of Retail Sale., 3.2.5. Product Transfer Document (PTD) Requirements., Appendix A. ~~MTBE, Methyl tertiaryubutyl ether~~, ETBE, Ethyl tertiary-butyl ether**

Item under Consideration:
Amend the NIST Handbook 130 Uniform Fuels and Automotive Lubricants Regulation as follows:

~~1.46. MTBE. Methyl tertiary-butyl ether, the chemical compound (CH_3)$_3$COCH$_3$ [$C_5H_{12}O$]. (Added 2008) (Amended 2018)~~

1.X. ETBE. – Ethyl tertiary-butyl ether, the chemical compound ($CH_3CH_2OC(CH_3)_3$ [$C_6H_{14}O$]. (Added 202X)

…

3.2.4. Method of Retail Sale. – Type of Oxygenate must be disclosed. All automotive gasoline or automotive gasoline-oxygenate blends, or racing gasoline kept, offered, or exposed for sale, or sold at retail containing more than one volume percent oxygenate shall be identified as "with" or "containing" (or similar wording) the predominant oxygenate in the engine fuel. For example, the label may read "contains ethanol" or "with ~~**methyl tertiary-butyl ether (MTBE)**~~**ethyl tertiary-butyl ether (ETBE)**." The oxygenate contributing the largest mass percent oxygen to the blend shall be considered the predominant oxygenate. Where mixtures of only ethers are present, the retailer may post the predominant oxygenate followed by the phrase "or other ethers" or alternatively post the phrase "contains ~~**MTBE**~~**ETBE** or other ethers." In addition, gasoline-methanol blends containing more than 0.3 % by volume methanol shall be identified as "with" or "containing" methanol. This information shall be posted on the upper 50 % of the dispenser front panel in a position clear and conspicuous from the driver's position in a type at least 12.7 mm (1/2 in) in height, 1.5 mm (1/16 in) stroke (width of type).
(Amended 1996~~**, and**~~ 2018**, and 202X**)

3.2.5. Product Transfer Document (PTD) Requirements. – The retailer shall be provided information that complies with requirements for gasoline, gasoline additives, and gasoline regulated blendstocks, 40 C.F.R. § 1090.1110 when the fuel contains ethanol. Additional declarations may be required for specific fuels

(a) For fuels containing multiple oxygenates or oxygenates other than ethanol, information a declaration of the predominant oxygenate or combination of oxygenates present in concentrations sufficient to yield an oxygenate content of at least 1.0 % by volume in the fuel. Where mixtures of only ethers are present, the fuel supplier may identify either the predominant oxygenate in the fuel (i.e., the oxygenate contributing the largest mass percent oxygen) or alternatively, use the phrase "contains ~~**MTBE**~~**ETBE** or other ethers."
(Added 2014) (Amended 2022~~**,** **and**~~2023 **and 202X**)

(b) For fuels containing more than 0.3 % by volume methanol a declaration shall be identified as "with" or "containing" methanol.
(Added 2014) (Amended 2018 and 2023)

…

Appendix A. Index

~~**MTBE, Methyl tertiary-butyl ether 149**~~

ETBE, Ethyl tertiary-butyl ether XXX

Comments in Favor:

Regulatory:
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Industry:
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Advisory:
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Comments Against:

Regulatory:
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Industry:
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Advisory:
•

Neutral Comments:

Regulatory:
•

Industry:
•

Advisory:
•

Item Development:
New Proposal in 2027

Regional Associations' Comments:
New Proposal in 2027

CWMA 2026 Interim Meeting:

No comments were received.

The committee recommends a voting status.

WWMA 2026 Annual Meeting:

WWMA L&R Committee member Mr. Scott Wagner recused himself from the open hearings and working sessions for this item.

Mr. Steve Harrington (Oregon Weights & Measures) expressed general support for this item but questioned whether MTBE gasoline blending is permissible anywhere. He also wondered if there should be separate definitions and striking MTBE then adding ETBE rather than modifying the language. He recommended a DEVELOPING status to allow incorporation of the proposed changes.

Mr. Matthew Sheehan (Chevron) supported assigning this item to the Fuels and Lubricants Subcommittee and recommended using broader language to classify these products as Ether blends, helping to avoid similar issues in the future. He recommended a DEVELOPING status.

Mr. Steve Harrington (Oregon Weights & Measures) expressed his support for designating this item an ASSIGNED status.

Mr. Kevin Schnepp (California Division of Measurement Standards) also supported the recommendation to broaden the language to include Ether blends and an ASSIGNED status.

Based on the comments heard during open hearings and the submitter's request that this item be assigned to the Fuels and Lubricants Subcommittee in their original justification, the WWMA L&R Committee recommends this item remain blocked with MOS-27.2 and that both items be ASSIGNED to the Fuels and Lubricants Subcommittee.

NEWMA 2026 Interim Meeting:

No comments were heard from the floor.

The committee had no recommendation for this item.

SWMA 2026 Annual Meeting:

Submitter recommends this item be assigned.

Vanessa Benchea representing the state of Florida supports this item and recommends assigned status.

SWMA Laws and Regulations committee recommends this item to be given assigned status.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

ITEM BLOCK 4 (B4) MOISTURE ALLOWANCE CONSIDERATION

Source:
Michigan Department of Agriculture & Rural Development

Purpose:
Change the language for the moisture gray area from "moisture allowance" to "moisture consideration."

Original Justification:
This is a companion item to those changes requested for HB133.

In speaking with both weights and measures officials and industry, quite often both interpret the language "moisture allowance" to mean "tolerance" which should automatically be given to inspection results when a lot is found short. Changing the wording to "moisture consideration" should be more clear that "Further information is required to determine lot compliance or noncompliance", as stated in the glossary.

Some industries may believe "moisture allowance" should be used as a tolerance and have always used it as same. There may also be enforcement jurisdictions that want to continue to use it as a tolerance rather than conducting additional investigations into the root cause of shortages found in those packages that allow moisture consideration.

B4: POL-25.1 A 2.6.12. Point-of-Pack Inspection Guidelines.

Previous Status:
2026: Assigned to the Moisture Allowance Task Group – Language Changes
2025: Assigned to the Moisture Allowance Task Group

Item under Consideration:
Amend Handbook 130 NCWM Policy, Interpretations, and Guidelines as follows:

2.6.12. Point-of-Pack Inspection Guidelines.

A. Weights and Measures Officials' Responsibilities.

…

8. Sample questions and tasks for Inspectors:

(c) Warehouse Inspection.

If an inspection is conducted:

vi. Apply ~~moisture allowances~~ **a reasonable variation due to loss of moisture**, if applicable.

Regional Associations' Comments:

CWMA 2026 Interim Meeting:

No comments were received.

The committee recommends an assigned status.

WWMA 2026 Annual Meeting:

Mr. Kurt Floren (County of Los Angeles, California) explained that this block of items was originally submitted by the Michigan Department of Agriculture & Rural Development, however the title of the block is no longer reflective of the items under consideration and should be updated to prevent confusion. This item, POL-25.1, is an edit to NIST Handbook 130; striking "moisture allowances" and replacing it with "a reasonable variation due to loss of moisture" and he is supportive of this edit.

Mr. Kevin Schnepp (California Division of Measurement Standards) applauded the work of the Moisture Allowance Task Group which he felt was comprehensive. Mr. Schnepp stated that he was in full agreement with Kurt Floren on this item.

Mr. John McGuire (NIST OWM) stated that he was on the Moisture Allowance Task Group and that he met with Mr. Floren for a cursory review of the proposed edits. However, NIST OWM has not reviewed the edits and does not have

a formal position, although Mr. McGuire stated that he was generally in agreement with them and would like to see them included moving forward.

Based on the comments heard during open hearings, the WWMA L&R Committee has changed the title of Block 4 to "REASONABLE VARIATION DUE TO LOSS OF MOISTURE" and inserted this title into the agenda report. The WWMA L&R Committee recommends that this item remain blocked with NET-25.1, and that the items move forward together with a VOTING status.

NEWMA 2026 Interim Meeting:

A Regulator from NJ stated this item has merit and is needed. NJ understands that the submitter offered further updates during the Western Annual meeting. Based on those updates, NJ believes the item will be fully developed, recommends Voting status with developer updates.

A regulator from NY stated that the TG feels that it is done with what it was charged to do. Except for the flow chart that was going to be added to the guidance document, he feels that the proposal is fully developed.

The committee recommends a voting status for this item.

SWMA 2026 Annual Meeting:

Tory Brewer representing the state of West Virigina and acting chair on the Moisture Allowance Task group commented that he is not advocating for the item but informing the body that there is a new version item and it will be presented to the body at NCWM interim in January.

SWMA Laws and Regulations committee recommends this item to be given assigned status.

B4: NET-25.1 A 1.2.6.1. Applying a Moisture Allowance Consideration, 2.3.8. Moisture Allowances Considerations, 4.10.2.2. Moisture Shrinkage Allowance Consideration for Structural Plywood and Wood-based Structural Panels, 4.11.2.1. Shrinking Allowance Consideration

Previous Status:

2026: Assigned to the Moisture Allowance Task Group – Language Changes
2025: Assigned to the Moisture Allowance Task Group

Item under Consideration:

Amend Handbook 133 Checking the Net Contents of Packaged Goods as follows:

Chapter 1. General Information

1.2.6. ~~Deviations~~Variations Caused by ~~Moisture~~ Loss or Gain of Moisture in Packaged Goods

~~Deviations~~**Variations** from the net quantity of contents caused by the loss or gain of moisture from the package are permitted when they **are reasonable and** are caused by ordinary and customary exposure to conditions that normally occur in good distribution practice and that unavoidably result in change of weight or measure. According to regulations adopted by the U.S. Environmental Protection Agency, no ~~moisture loss~~ **permissible variation** is recognized on pesticides. (see Code of Federal Regulations 40 CFR 156.10.)

Test procedures for flour, dry pet food, pasta products, *Cannabis*, some meat products, and fresh poultry are based on the concept of a potentially permissible "reasonable variation due to moisture loss or gain" also known as a "gray area" or "no decision" area (see Section 2.3.8. "Adjustments for Reasonable Variations Due To Loss of Moisture"). When the average net weight of a sample is found to be less than the labeled weight, but not more than the boundary of the "gray area," the lot is said to be in the "gray" or "no decision" area. The gray area is not a tolerance. More information must be collected (see below) before lot compliance or noncompliance can be decided. Appropriate enforcement should be taken on packages found short weight and outside of the determined "reasonable variation due to moisture loss" or "gray area."

Federal laws, namely the Fair Packaging and Labeling Act (see 16 CFR Chapter 1 Subchapter E Part 500 § 500.25), the Food, Drug and Cosmetic Act (see 21 USC Chapter 9 Subchapter IV § 343), the Federal Meat Inspection Act (see 21 USC Chapter 12 Subchapter 1 § 601(n)(5)), and the Poultry Products Inspection Act (see 21 USC Chapter 10 § 453(h)(5)) each address requirements to consider "reasonable variations" from stated, labeled net content statements. Federal regulations promulgated under the Acts (see Title 21 Code of Federal Regulations (CFR) Chapter 1 § 101.105(q) re: FPLA; Title 9 CFR § 317.2(h)(2) re: Meat and Poultry Products); Title 9 CFR § 381.121(c)(6) re: Poultry Products) each state that such "reasonable variations" are applicable to packaged products "during the course of good distribution practices." Similarly, "reasonable variations" may be permitted when resulting from "unavoidable deviations in good manufacturing practices."

In determining whether or not "good distribution practices" and "good manufacturing practices" have been followed regarding products subject to reasonable variations due to loss of moisture, see considerations set forth in Section 2.3.8.3.

1.2.6.1. Applying an ~~Moisture Allowance~~Adjustment for Reasonable Variation Due To Moisture Loss

Some packaged products may lose or gain moisture and, therefore, lose or gain weight or volume after packaging. The amount of ~~moisture loss~~ **reasonable variation in quantity** depends upon the nature of the product, the packaging material, the length of time it is in distribution, environmental conditions, and other factors. ~~Moisture loss~~ **Variations due to loss or gain of moisture** may occur even when manufacturers follow good distribution practices. Loss of weight "due to exposure" may include solvent evaporation, not just loss of water. For loss or gain of moisture, the ~~moisture allowances~~ **application of adjustments recognizing reasonable variations** may be applied before or after the package errors are determined.

To apply an ~~allowance~~ **adjustment for reasonable variation** before determining package errors, adjust the Nominal Gross Weight (see Section 2.3.6. "Determine Nominal Gross Weight and Package Errors"), so the package errors are increased by an amount equal to the ~~moisture allowance~~ **permissible reasonable variation**. This approach is used to account for **reasonable variations due to loss of** moisture ~~loss~~ in both the average and individual package errors.

It is also permissible to apply the ~~moisture allowances~~ **adjustments for reasonable variations** after individual package errors and average errors are determined.

Example:
*A sample of a product that could be subject to ~~moisture loss~~ **reasonable variation** might fail because the average error is minus or the error in several of the sample packages are found to be unreasonable **minus** errors (i.e., the package error is greater than the Maximum Allowable Variation (MAV) permitted for the package's labeled quantity).*

NOTE: "Maximum Allowable Variation" is different from "Reasonable Variation Due To Loss or Gain of Moisture." (See Section 1.2.4.)

You may apply a**n adjustment for reasonable variation due to loss of** moisture ~~allowance~~ after determining the package errors by adding the ~~allowance~~ **reasonable variation** to the Sample Error Limit (SEL) and then, comparing the average error to the SEL to determine compliance. The ~~moisture allowance~~ **reasonable variation due to loss of moisture** must be added to the MAV before evaluating sample errors to identify unreasonable minus errors.

(Amended ~~2010~~**XXXX**)

~~This handbook provides "moisture allowances" for some meat and poultry products, flour, pasta, *Cannabis* (this only includes plant material but does not include products containing *Cannabis*) and dry pet food. (see Chapter 2, Table 2-3. "Moisture Allowances") These allowances are based on the premise that when the average net weight of a sample is found to be less than the labeled weight, but not by an amount that exceeds the allowable limit, either the lot is declared to be within the moisture allowance or more information must be collected before deciding lot compliance or noncompliance.~~

~~(Amended 2024)~~

~~Test procedures for flour, some meat, and poultry are based on the concept of a "moisture allowance" also known as a "gray area" or "no decision" area (see Section 2.3.8. "Moisture Allowances"). When the average net weight of a sample is found to be less than the labeled weight, but not more than the boundary of the "gray area," the lot is said to be in the "gray" or "no decision" area. The gray area is not a tolerance. More information must be collected before lot compliance or noncompliance can be decided. Appropriate enforcement should be taken on packages found short weight and outside of the "moisture allowance" or "gray area."~~
~~(Amended 2002)~~

Chapter 2. Test Procedures for Packages Labeled by Weight – Gravimetric Testing

2.3. Basic Test Procedure for Gravimetric Testing of Net Weight

2.3.5. Procedures for Determining Tare

c. Wet Tare

Wet Tare is used tare material where no effort is made to dry the tare material. Free-flowing liquids are considered part of the tare weight.

Wet tare procedures must not be used to verify the labeled net weight of packages of meat and poultry packed at an official United States Department of Agriculture (USDA) facility and bearing a USDA seal of inspection. The USDA Food Safety and Inspection Service (FSIS) adopted specific sections of the 2005 4th Edition of NIST Handbook 133 by reference in 2008 but not the "wet tare" method for determining net weight compliance. FSIS considers the free-flowing liquids in packages of meat and poultry products, including single-ingredient, raw poultry products, to be integral components of these products (see Federal Register, September 9, 2008 [Volume 73, Number 175] [Final Rule – pages 52189-52193]).

If the jurisdiction uses wet tare to determine net weight, follow the procedures described below that reference Used Dry Tare, except make no effort to dry the tare material. If Wet Tare is used to verify the net weight of the packages, the inspector must ~~allow for moisture loss~~ **consider, and apply processes for determining, potential application of adjustments for reasonable variations due to loss or gain of moisture**.
(Amended ~~2010~~**XXXX**)

2.3.7. Evaluate for Compliance

This inspection lot will pass or fail based on the sample test results. The following steps lead the inspector through the process to determine if a sample passes or fails. If the product is subject **to** ~~a~~**adjustments for reasonable variations due to loss or gain of** moisture ~~allowance~~, follow the procedures under Section 2.3.8. "~~Moisture Allowances~~**Adjustments for Reasonable Variations Due To Loss of Moisture**" to correct the MAV.

2.3.7.2. Average Requirement

1. Determine the average error by dividing the total error recorded in Box 15 by the sample size recorded in Box 6. Record the average error in Box 18 if using dimensionless units or in Box 19 if using units of weight.

2. Compute the average error in terms of weight (if working in dimensionless units up to this time) by multiplying the average error in dimensionless units by the unit of measure and record the value in Box 19. If the average error is positive, the sample passes the average requirement. If the average error is negative, the sample fails under a "Category B" test. Record in Box 20.

Note: If the total error recorded in Box 15 is a plus value, and Box 17 is "No," (the number of unreasonable errors is equal to or less than the number allowed, recorded in Box 8), the lot passes.

(Refer to Section 1.4.1. Net Quantity of Contents Requirements for Pesticides Labeled with Minimum Net Quantity of Contents Declarations.")

3. If the average error is a negative value when testing under the Sampling Plans for "Category A," compute the Sample Error Limit (SEL) as follows:

Compute the Sample Standard Deviation and record it in Box 21.

$$s = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(X_i - \bar{X})^2}$$

Obtain the Sample Correction Factor from Column 3 of Appendix A. Table 2-1. "Sampling Plans for Category A" test. Record this value in Box 22.

Compute the Sample Error Limit using the formula:

Sample Error Limit (Box 23) =
Sample Standard Deviation (Box 21) × Sample Correction Factor (Box 22)

4. Compliance Evaluation of the Average Error:

If the value of the Average Error (Box 18) is smaller than the Sample Error Limit (Box 23), the sample passes.

If the value of the Average Error (disregarding the sign) (Box 18) is larger than the Sample Error Limit (Box 23), the sample fails. However, if the product is subject to **potential loss of** moisture ~~loss~~, the sample does not necessarily fail. Follow the procedures under "~~Moisture Allowances~~**Adjustments for Reasonable Variations Due To Loss of Moisture**" in this chapter.

~~(Amended 2018)~~

(Amended ~~2022~~XXXX)

2.3.8. ~~Moisture Allowances~~Adjustments for Reasonable Variations Due To Loss of Moisture

When no predetermined ~~allowance~~**gray area** is found in NIST Handbook 133, the potential for **reasonable variation due to loss of** moisture ~~loss~~ must be considered. Inspectors should follow their jurisdiction's guidance for making their determination on ~~an acceptable moisture allowance~~**an adjustment for reasonable variation to be permitted. Such jurisdictional guidance should include considerations set forth in Section 2.3.8.3.**

(~~Added 2010~~**Amended XXXX**)

If the product tested is subject to ~~moisture loss~~**variations due to loss of moisture**, provide for the ~~moisture allowance~~**reasonable variation** by following one of the two procedures listed below.

2.3.8.1. Applying ~~Moisture Loss~~ Reasonable Variation Due to Loss of Moisture before Determining Package Errors

Determine the percent value of the ~~moisture allowance~~**reasonable variation** if the product is listed below. (see Table 2-3. "~~Moisture Allowances~~**'Gray Area' or Predetermined Reasonable Variation Due To Loss of Moisture**.")

Table 2-3.
~~Moisture Allowances~~"Gray Area" or Predetermined Reasonable Variation Due To Loss of Moisture

Percentage values represent the maximum variation to be considered.
Listed values are not tolerances, but limits to what is deemed "reasonable."

Verifying the labeled net weight of packages of:	~~Moisture Allowance~~Gray Area is:	Notes
Flour	3 %	
Dry pet food	3 %	Dry pet food means all extruded dog and cat foods and baked treats packaged in Kraft paper bags and/or cardboard boxes with a moisture content of 13 % or less at time of pack.
Pasta products	3 %	Pasta products means all macaroni, noodle, and like products packaged in kraft paper bags, paperboard cartons, and/or flexible plastic bags with a moisture content of 13 % or less at the time of pack.
Borax	see Section 2.4. Borax	
Cannabis	3 %	*Cannabis* means plant material only, and not products containing *Cannabis*, whether containing more than 0.3 % Total Delta-9 THC (also known as cannabis, Marijuana, or Marihuana) or containing 0.3 % or less Total Delta-9 THC (also known as Hemp).
Wet Tare Only[1]		
Fresh poultry	3 %	Fresh poultry is defined as poultry above a temperature of − 3 °C (26 °F) that yields or gives when pushed with the thumb.
Franks or hot dogs	2.5 %	

Table 2-3. **~~Moisture Allowances~~"Gray Area" or Predetermined Reasonable Variation Due To Loss of Moisture**		
Percentage values represent the maximum variation to be considered. **Listed values are not tolerances, but limits to what is deemed "reasonable."**		
Bacon, fresh sausage, and luncheon meats	0 %	For packages of bacon, fresh sausage, and luncheon meats, there is no ~~moisture allowance~~**adjustment for loss of moisture** if there is no free-flowing liquid or absorbent material in contact with the product and the package is cleaned of clinging material. Luncheon meats are any cooked sausage product, loaves, jellied products, cured products, and any sliced sandwich-style meat. This does not include whole hams, briskets, roasts, turkeys, or chickens requiring further preparation to be made into ready-to-eat sliced product. When there is no free-flowing liquid inside the package and there are no absorbent materials in contact with the product, Wet Tare and Used Dried Tare are equivalent.

[1] Wet tare procedures must not be used to verify the labeled net weight of packages of meat and poultry packed at an official United States Department of Agriculture (USDA) facility and bearing a USDA seal of inspection. The Food Safety and Inspection Service (FSIS) adopted specific sections of the 2005 4th edition of NIST Handbook 133 by reference in 2008 but not the "Wet Tare" method for determining net weight compliance. FSIS considers the free-flowing liquids in packages of meat and poultry products, including single-ingredient, raw poultry products, to be integral components of these products (see Federal Register, September 9, 2008 [Volume 73, Number 175] [Final Rule – pages 52189-52193]).

Notes:

(1) There is no ~~moisture allowance~~**adjustment for loss of moisture** when inspecting meat and poultry from a USDA inspected plant when Used Dry Tare and "Category A" sampling plans are used.

(2) For the Wet Tare Only section of Table 2-3. "~~Moisture Allowances~~**'Gray Area' or Predetermined Reasonable Variation Due To Loss of Moisture**," free-flowing liquid and liquid absorbed by packaging materials in contact with the product are part of the wet tare. (Note Added 2010)

(Amended 2010, 2013, ~~and~~ 2024**, and XXXX**)

2. To compute ~~moisture allowance~~**a reasonable variation due to loss of moisture**, multiply the labeled quantity by the decimal percent value of the ~~allowance~~**reasonable variation to be applied.** Record this value in Box 13a.

Example:
Labeled net quantity of flour is 907 g (2 lb)
*~~Moisture Allowance~~**"Gray Area"** is 3 % (0.03)*
*~~Moisture Allowance~~**"Gray Area"** = 907 g (2 lb) × 0.03 = 27 g (0.06 lb)*

3. If the ~~Moisture Allowance~~ **Gray Area/Predetermined Reasonable Variation** is known in advance (e.g., flour, pasta products, ***Cannabis,*** ~~and~~ dry pet food**, fresh poultry, and franks or hot dogs**), it can be applied by adjusting the Nominal Gross Weight used to determine the sample package errors. The ~~Moisture Allowance~~**Gray Area/Reasonable Variation** in Box 13a is subtracted from the Nominal Gross Weight to obtain an Adjusted Nominal Gross Weight which is entered in Box 14. The Nominal Gross Weight is defined in Section 2.3.6.1. as the sum of the Labeled Weight and the Average Tare Weight from Box 13.

Example:

Use a Labeled Weight of 907 g (2 lb) and an Average Tare Weight of 14 g (0.03 lb)

The calculation is:

*Labeled Net Quantity 907 g (2 lb) + Average Tare Weight 14 g (0.03 lb) = 921 g (2.03 lb) – ~~Moisture Allowance~~ **"Gray Area"** 27 g (0.06 lb) = Adjusted Nominal Gross Weight of 894 g (1.97 lb)*

This result is entered in Box 14.

4. Determine package errors by subtracting the Adjusted Nominal Gross Weight from the Gross Weights of the Sample Packages.

Example:
The calculation is:

Gross Weight of the Sample Packages – Adjusted Nominal Gross Weight = Package Error

Note: When the Nominal Gross Weight is adjusted by subtracting the ~~Moisture Allowance~~**Gray Area/Reasonable Variation** value(s)**,** the Maximum Allowable Variation(s) is not changed. This is because the errors that will be found in the sample packages have been adjusted by subtracting the ~~Moisture Allowance~~**Gray Area/Reasonable Variation** (e.g., 3 %) from the Nominal Gross Weight. That increases the individual package errors by the amount of the ~~moisture allowance~~**Gray Area/Reasonable Variation** (e.g., 3 %). If the value(s) of the MAV(s) were also adjusted, it would result in doubling the ~~allowance~~**adjustment for the Gray Area/Reasonable Variation**. MAV is always based **solely** on the labeled net quantity.

(~~Added 2010~~**Amended XXXX**)

2.3.8.2 Applying ~~Moisture Allowance~~Reasonable Variation Due To Loss of Moisture after Determining Package Errors

Adjustments can be made when the value of the ~~Moisture Allowance~~**Reasonable Variation** is determined following the test (e.g., after the sample fails or if a packer provides **justification for a** reasonable **variation due to** moisture ~~allowance~~**loss** based on data obtained using a scientific method) using the following approach:

If the sample fails the Average Requirement but has no unreasonable package errors **(based upon minus errors exceeding the applicable MAV),** only Step 1 is used. If the sample passes the Average Requirement but fails because the sample included one or more Unreasonable Minus Errors, only Step 2 is used.

If the sample fails the Average and MAV Requirements, both of the following steps are applied.

Use the following approach to apply ~~a Moisture Allowance~~**an adjustment for Reasonable Variation Due to Loss of Moisture** to the Average Requirement after the test is completed:

- the ~~Moisture Allowance~~**Reasonable Variation** is computed;

  Example:
  3 % × 907 g (2 lb) = 27 g (0.06 lb)

- added to the Sample Error Limit;

  Example:
  If the Sample Error Limit is 0.023, add 0.06 to obtain an Adjusted Sample Error Limit of 0.083)

- the Adjusted Sample Error Limit is then compared to the Average Error of the Sample; and

- if the average error (disregarding sign) in Box 18 is smaller than the Adjusted Sample Error Limit, the sample passes.

HOWEVER,

- if the average error (disregarding sign) in Box 18 is larger than the Adjusted Sample Error Limit, the sample fails.

To apply ~~Moisture Allowance~~**Reasonable Variation Due to Loss of Moisture** to the MAV(s) after the test, the following method is recommended:

- compute ~~Moisture Allowance~~**Reasonable Variation Due to Loss of Moisture**;

Example:
3 % × 907 g (2 lb) = 27 g (0.06 lb)

- add to MAV for labeled net quantity of the package to get Adjusted Maximum Allowable Variations **(MAV);**

Example:
MAV for 907 g (2 lb) is 31.7 g (0.07 lb) + 27 g (0.06 lb) =
Adjusted Maximum Allowable Variation(s) of 58.7 g (0.13 lb)

- compare each minus package error to the Adjusted MAV;

- mark package errors that exceed the Adjusted MAV and record the number of unreasonable minus errors found in the sample; and
- if this number exceeds the number of unreasonable errors allowed, the sample fails.

(~~Added 2010~~**Amended XXXX**)

2.3.8.3. ~~Moisture Allowance~~Reasonable Variation Due To Loss of Moisture or "Gray Area"

When the average error of a lot of fresh poultry, franks/hot dogs, ~~or~~ pasta products**, *Cannabis*, flour, or dry dog food** is minus but does not exceed the established "~~moisture allowance~~**Predetermined Reasonable Variation Due To Loss Of Moisture"** or "gray area," contact the packer or plant management personnel to determine what information is available on the lot in question. **Similarly, when no "Predetermined Reasonable Variation" or "gray area" has been adopted regarding a commodity under inspection, additional research, inquiry, investigation, and information gathering should be undertaken before a compliance decision is rendered.** Questions to the plant management representative may include:

- Is a quality control program in place?
- What information is available concerning the lot in question?
- If net weight checks were completed, what were the results of those checks?
- What adjustments, if any, were made to the target weight?

Note: If the plant management has data on the lot, such data may help to substantiate that the "lot" had met the net content requirements at the point of manufacture.

Additional steps to take in determining whether or not to apply an Adjustment for Reasonable Variations Due To Loss of Moisture:

It is critical to note that Adjustments for Reasonable Variations, consideration of which are based upon "good manufacturing practices" and "good distribution practices," and related determinations of compliance with net content requirements are dependent upon demonstrable adherence by product packers and distributors to those "good" practices. Consideration must be given to, and information should be sought regarding, the following:

- **What is the nature of the product? Is it subject to loss of moisture during distribution?**
- **Have data records been requested from the manufacturer regarding production-run quantity and quality control checks for the lot under inspection? Have they been reviewed for anomalies in filling/packaging processes?**
- **What is the packaging material? Is it porous (subject to product evaporation) or hermetically sealed?**
- **Is the commodity one which should be constantly refrigerated? Was that followed?**
- **How long has the product been in distribution?**
- **Is there evidence that the product was maintained in an inappropriately warm environment for a length of time that would encourage loss of moisture? (i.e., not good distribution practice)**
- **Do industry "best practices" exist for the commodity regarding storage and distribution methods and practices?**
- **Are studies available on equivalent or similar commodities exist regarding quantity variations due to gains or losses of moisture over time?**

The above is not an exhaustive list of considerations that may be applicable. Commodity types and characteristics vary widely, influencing their respective vulnerability to environmental conditions and other factors that may affect loss of moisture resulting in variations from stated net content. In making compliance decisions, the official should be prepared with such collected information and demonstration of appropriate investigation and due process considerations to justify either passage or failure of the packaged commodity test.

~~This handbook provides "moisture allowances" for some meat and poultry products, flour, pasta products, and dry pet food. These allowances are based on the premise that when the average net weight of a sample is found to be less than the labeled weight, but not by an amount that exceeds the allowable limit, either the lot is declared to be within the moisture allowance or further investigation can be conducted.~~

~~Reasonable variations from net quantity of contents caused by the loss or gain of moisture from the package are permitted when caused by ordinary and customary exposure to conditions that occur under good distribution practices.~~ If evidence is obtained and documented to prove that the lot was shipped from the packaging plant in a short-weight condition or was distributed under inappropriate or damaging distribution practices **(i.e., not restricted to "ordinary and customary exposure to conditions that normally occur under good distribution practices," as stated in Section 1.2.6.),** appropriate enforcement action should be taken.
(Amended 2010 and 2013 **and XXXX**)

Original Justification:
This is a companion item to those changes requested for HB130.

In speaking with both weights and measures officials and industry, quite often both interpret the language "moisture allowance" to mean "tolerance" which should automatically be given to inspection results when a lot is found short. Changing the wording to "moisture consideration" should be more clear that "Further information is required to determine lot compliance or noncompliance", as stated in the glossary.

Possible Opposing Arguments:
Some industries may believe "moisture allowance" should be used as a tolerance and have always used it as same. There may also be enforcement jurisdictions that want to continue to use it as a tolerance rather than conduct ing additional investigations into the root cause of shortages found in those packages that allow moisture consideration.

Comments in Favor:

Regulatory:
- None

Industry:
- None

Advisory:
- None

Comments Against:

Regulatory:
- None

Industry:
- None

Advisory:
- None

Neutral Comments:

Regulatory:
- NCWM Interim 2026: Multiple Weights and Measures officials rose to support the work of the Work Group and recommended that it continue to develop this item.

Industry:
- None

Advisory:
- None

Item Development:
NCWM 2026 Annual: The Committee received an update from Mr. Tory Brewer, Chair of the Moisture Loss Task Group. They presented for membership consideration the updated language shown under Item Under Consideration above. He reported the charge of his task group was amending and updating language in L&R Block 4 items POL 25.1 and NET 25.1 to provide clarity and consistency in terminology and application pertaining to "Moisture Allowance" in Handbooks 130 and 133 to guide manufacturers and regulators, regarding when and if moisture allowances should be considered in determined net content compliance for packaged commodities.

As presented in January at the interim, the task group reviewed other federal regulations and decided to mirror the terminology found therein. The task group also believes that it was critical to better organize the intent and procedures in Handbook 133 to provide clarity to regulators that these "allowances" are NOT a tolerance.

As such, the task group replaced all applicable mentions within these items with the term from the other federal regulations which is "Reasonable Variation due to Loss or Gain of Moisture."

The group then reorganized the language and made a few edits to make it easier for inspectors, in our opinions.

It was also the original intent to include a flow chart within the item. However, after many hours of consideration, discussion, and editing, the task group has decided to remove the flow chart all together recommending inclusion of it in the EPO or guidance document once it is published.

NCWM 2026 Interim:
This item remains assigned to the Work Group. The Committee deleted 4.10.2.2. Moisture Shrinkage Allowance Consideration for Structural Plywood and Wood-based Structural Panels and 4.11.2.1. Shrinking Allowance Consideration from the title because it was previously agreed that plywood would not be part of the proposed changes to this item.

Mr. Kurt Floren (County of Los Angeles, California), a member of the Moisture Allowance Task Group, provided a presentation on the task group efforts.

Regional Associations' Comments:

CWMA 2026 Interim Meeting:

No comments were received.

The committee recommends an assigned status.

WWMA 2026 Annual Meeting:

During open hearings, proposed edits which were provided by Mr. Kurt Floren (County of Los Angeles, California) were presented and reviewed.

Mr. Floren explained that this block of items was originally submitted by the Michigan Department of Agriculture & Rural Development, however the title of the block is no longer reflective of the items under consideration and should be updated to prevent confusion. This item, NET-25.1, has a tremendous amount of work which was done by the Moisture Allowance Task Group. Mr. Floren emphasized that the language in black print (on the document he shared with his proposed edits; which is available on the WWMA website) contained the proposed edits from the Work Group, the language in red print is Mr. Floren's recommendations, which have not gone through the Work Group. Mr. Floren also expressed that moisture loss is a consideration, not an allowance, it is a gray area; moisture loss is considered based on factors such as good manufacturing and distribution practices where moisture loss is naturally occurring and unavoidable. Mr. Floren explained that this item would change the language "Moisture Allowance" to "Reasonable Variations Due to Loss of Moisture" which is consistent with Federal Law unlike "Moisture Allowance" which is not. He further explained that there are many questions to be answered when considering whether you will allow the variation and that the intention of this item is to provide guidance to inspectors and to empower them to make a decision. Mr. Floren recommended a VOTING status for this item with his edits.

Mr. Kevin Schnepp (California Division of Measurement Standards) applauded the work of the Moisture Allowance Task Group which he felt was comprehensive. Mr. Schnepp stated that he was in full agreement with Kurt Floren on this item.

Mr. John McGuire (NIST OWM) stated that he was on the Moisture Allowance Task Group and that he met with Mr. Floren for a cursory review of the proposed edits. However, NIST OWM has not reviewed the edits and does not have a formal position, although Mr. McGuire stated that he was generally in agreement with them and would like to see them included moving forward.

The WWMA L&R Committee recommends that this item remain blocked with POL-25.1, and that the items move forward together with a VOTING status, including the edits provided on NET-25.1 at open hearings as shown below in red and double underlined:

B4: NET-25.1 **1.2.6.1. Applying ~~a Moisture Allowance Consideration~~Adjustment for Reasonable Variation for Loss or Gain of Moisture, 2.3.8. Adjustment for Reasonable Variation for Loss or Gain of Moisture~~Moisture Allowances Considerations~~, ~~4.10.2.2. Moisture Shrinkage Allowance Consideration for Structural Plywood and Wood-based Structural Panels, 4.11.2.1. Shrinking Allowance Consideration~~**

Item under Consideration:
Amend Handbook 133 Checking the Net Contents of Packaged Goods as follows:

Chapter 1. General Information

1.2.6. ~~Deviations~~Variations Caused by ~~Moisture~~ Loss or Gain of Moisture in Packaged Goods

~~Deviations~~**Variations** from the net quantity of contents caused by the loss or gain of moisture from the package are permitted when they **are reasonable and** are caused by ordinary and customary exposure to conditions that normally occur in good distribution practice and that unavoidably result in change of weight or measure. According to regulations adopted by the U.S. Environmental Protection Agency, no ~~moisture loss~~ **permissible variation** is recognized on pesticides. (see Code of Federal Regulations 40 CFR 156.10.)

Test procedures for packaged products subject to loss or gain of moisture are based on the concept of a potentially permissible "reasonable variation due to moisture loss or gain." Product lots found to vary in content beyond such determined reasonable variation are subject to enforcement action, such as ordering off-sale, correcting the labeled net content, or repacking to meet the labeled content. For specific products, including flour, dry pet food, pasta products, *Cannabis*, some meat products, and fresh poultry, ~~are based on the concept of a~~ the potentially permissible "reasonable variation due to moisture loss or gain" ~~also~~is known as a "gray area" or "no decision" area (see Section 2.3.8. "Adjustments for Reasonable Variations Due To Loss of Moisture"). When the average net weight of a sample is found to be less than the labeled weight, but not more than the boundary of the "gray area," the lot is said to be in the "gray" or "no decision" area. The gray area is not a tolerance. More information must be collected (see below) before lot compliance or noncompliance can be decided. Appropriate enforcement should be taken on packages found short weight and outside of the determined "reasonable variation due to moisture loss" or "gray area."

Federal laws, namely the Fair Packaging and Labeling Act (see 16 CFR Chapter 1 Subchapter E Part 500 § 500.25), the Food, Drug and Cosmetic Act (see 21 USC Chapter 9 Subchapter IV § 343), the Federal Meat Inspection Act (see 21 USC Chapter 12 Subchapter 1 § 601(n)(5)), and the Poultry Products Inspection Act (see 21 USC Chapter 10 § 453(h)(5)) each address requirements to consider "reasonable variations" from stated, labeled net content statements. Federal regulations promulgated under the Acts (see Title 21 Code of Federal Regulations (CFR) Chapter 1 § 101.105(q) re: FPLA; Title 9 CFR § 317.2(h)(2) re: Meat and Poultry Products); Title 9 CFR § 381.121(c)(6) re: Poultry Products) each state that such "reasonable variations" are applicable to packaged products "during the course of good distribution practices." Similarly, "reasonable variations" may be permitted when resulting from "unavoidable deviations in good manufacturing practices."

In determining whether or not "good distribution practices" and "good manufacturing practices" have been followed regarding products subject to reasonable variations due to loss of moisture, see considerations set forth in Section 2.3.8.3. Reasonable Variation Due To Loss of Moisture or "Gray Area"

1.2.6.1. Applying an ~~Moisture Allowance~~Adjustment for Reasonable Variation Due To Moisture Loss
Some packaged products may lose or gain moisture and, therefore, lose or gain weight or volume after packaging. The amount of ~~moisture loss~~ **reasonable variation in quantity** depends upon the nature of the product, the packaging material, the length of time it is in distribution, environmental conditions, and other factors. ~~Moisture loss~~ **Variations due to loss or gain of moisture** may occur even when manufacturers follow good distribution practices. Loss of weight "due to exposure" may include solvent evaporation, not just loss of water. For loss or gain of moisture, the ~~moisture allowances~~ **application of adjustments recognizing reasonable variations** may be applied before or after the package errors are determined.

To apply an ~~allowance~~ **adjustment for reasonable variation** before determining package errors, adjust the Nominal Gross Weight (see Section 2.3.6. "Determine Nominal Gross Weight and Package Errors"), so the package errors are increased by an amount equal to the ~~moisture allowance~~ **permissible reasonable variation**. This approach is used to account for **reasonable variations due to loss of** moisture ~~loss~~ in both the average and individual package errors.

It is also permissible to apply the ~~moisture allowances~~ **adjustments for reasonable variations** after individual package errors and average errors are determined.

Example:
*A sample of a product that could be subject to ~~moisture loss~~ **reasonable variation** might fail because the average error is minus or the error in several of the sample packages are found to be unreasonable **minus** errors (i.e., the package error is greater than the Maximum Allowable Variation (MAV) permitted for the package's labeled quantity).*

NOTE: "Maximum Allowable Variation" is different from "Reasonable Variation Due To Loss or Gain of Moisture." (See Section 1.2.4.)

You may apply a**n adjustment for reasonable variation due to loss of** moisture ~~allowance~~ after determining the package errors by adding the ~~allowance~~ **reasonable variation** to the Sample Error Limit (SEL) and then, comparing the average error to the SEL to determine compliance. The ~~moisture allowance~~ **reasonable variation due to loss of moisture** must be added to the MAV before evaluating sample errors to identify unreasonable minus errors.

(Amended ~~2010~~**XXXX**)

~~This handbook provides "moisture allowances" for some meat and poultry products, flour, pasta, *Cannabis* (this only includes plant material but does not include products containing *Cannabis*) and dry pet food. (see Chapter 2, Table 2-3. "Moisture Allowances") These allowances are based on the premise that when the average net weight of a sample is found to be less than the labeled weight, but not by an amount that exceeds the allowable limit, either the lot is declared to be within the moisture allowance or more information must be collected before deciding lot compliance or noncompliance.~~

~~(Amended 2024)~~

~~Test procedures for flour, some meat, and poultry are based on the concept of a "moisture allowance" also known as a "gray area" or "no decision" area (see Section 2.3.8. "Moisture Allowances"). When the average net weight of a sample is found to be less than the labeled weight, but not more than the boundary of the "gray area," the lot is said to be in the "gray" or "no decision" area. The gray area is not a tolerance. More information must be collected before lot compliance or noncompliance can be decided. Appropriate enforcement should be taken on packages found short weight and outside of the "moisture allowance" or "gray area."~~

~~(Amended 2002)~~

Chapter 2. Test Procedures for Packages Labeled by Weight – Gravimetric Testing

2.3. Basic Test Procedure for Gravimetric Testing of Net Weight

2.3.5. Procedures for Determining Tare

c. Wet Tare

Wet Tare is used tare material where no effort is made to dry the tare material. Free-flowing liquids are considered part of the tare weight.

Wet tare procedures must not be used to verify the labeled net weight of packages of meat and poultry packed at an official United States Department of Agriculture (USDA) facility and bearing a USDA seal of inspection. The USDA Food Safety and Inspection Service (FSIS) adopted specific sections of the 2005 4th Edition of NIST Handbook 133 by reference in 2008 but not the "wet tare" method for determining net weight compliance. FSIS considers the free-flowing liquids in packages of meat and poultry products, including single-ingredient, raw poultry products, to be integral components of these products (see Federal Register, September 9, 2008 [Volume 73, Number 175] [Final Rule – pages 52189-52193]).

If the jurisdiction uses wet tare to determine net weight, follow the procedures described below that reference Used Dry Tare, except make no effort to dry the tare material. If Wet Tare is used to verify the net weight of the packages, the inspector must ~~allow for moisture loss~~ **consider, and apply processes for determining, potential application of adjustments for reasonable variations due to loss or gain of moisture**.
(Amended ~~2010~~**XXXX**)

2.3.7. Evaluate for Compliance

This inspection lot will pass or fail based on the sample test results. The following steps lead the inspector through the process to determine if a sample passes or fails. If the product is subject **to** ~~a~~**adjustments for reasonable variations due to loss or gain of** moisture ~~allowance~~, follow the procedures under Section 2.3.8. "~~Moisture Allowances~~**Adjustments for Reasonable Variations Due To Loss of Moisture**" to correct the MAV.

2.3.7.2. Average Requirement

1. Determine the average error by dividing the total error recorded in Box 15 by the sample size recorded in Box 6. Record the average error in Box 18 if using dimensionless units or in Box 19 if using units of weight.

2. Compute the average error in terms of weight (if working in dimensionless units up to this time) by multiplying the average error in dimensionless units by the unit of measure and record the value in Box 19. If the average error is positive, the sample passes the average requirement. If the average error is negative, the sample fails under a "Category B" test. Record in Box 20.

Note: If the total error recorded in Box 15 is a plus value, and Box 17 is "No," (the number of unreasonable errors is equal to or less than the number allowed, recorded in Box 8), the lot passes.

(Refer to Section 1.4.1. Net Quantity of Contents Requirements for Pesticides Labeled with Minimum Net Quantity of Contents Declarations.")

3. If the average error is a negative value when testing under the Sampling Plans for "Category A," compute the Sample Error Limit (SEL) as follows:

   Compute the Sample Standard Deviation and record it in Box 21.

$$s = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(X_i - \bar{X})^2}$$

Obtain the Sample Correction Factor from Column 3 of Appendix A. Table 2-1. "Sampling Plans for Category A" test. Record this value in Box 22.

Compute the Sample Error Limit using the formula:

Sample Error Limit (Box 23) =
Sample Standard Deviation (Box 21) × Sample Correction Factor (Box 22)

4. Compliance Evaluation of the Average Error:

If the value of the Average Error (Box 18) is smaller than the Sample Error Limit (Box 23), the sample passes.

If the value of the Average Error (disregarding the sign) (Box 18) is larger than the Sample Error Limit (Box 23), the sample fails. However, if the product is subject to **potential loss of** moisture ~~loss~~, the sample does not necessarily fail. Follow the procedures under "~~Moisture Allowances~~**Adjustments for Reasonable Variations Due To Loss of Moisture**" in this chapter.

~~(Amended 2018)~~

(Amended ~~2022~~XXXX)

2.3.8. ~~Moisture Allowances~~Adjustments for Reasonable Variations Due To Loss of Moisture

When no predetermined ~~allowance~~**gray area** is found in NIST Handbook 133, the potential for **reasonable variation due to loss of** moisture ~~loss~~ must be considered. Inspectors should follow their jurisdiction's guidance for making their determination on ~~an acceptable moisture allowance~~**an adjustment for reasonable variation to be permitted. Such jurisdictional guidance should include considerations set forth in Section 2.3.8.3. Reasonable Variation Due To Loss of Moisture or "Gray Area"**

(~~Added 2010~~**Amended XXXX**)

If the product tested is subject to ~~moisture loss~~**variations due to loss of moisture**, provide for the ~~moisture allowance~~**reasonable variation** by following one of the two procedures listed below.

2.3.8.1. Applying ~~Moisture Loss~~ Reasonable Variation Due to Loss of Moisture before Determining Package Errors

1. Determine the percent value of the ~~moisture allowance~~**reasonable variation** if the product is listed below. (see Table 2-3. "~~Moisture Allowances~~**'Gray Area' or Predetermined Reasonable Variation Due To Loss of Moisture**.")

Table 2-3.
~~Moisture Allowances~~"Gray Area" or Predetermined Reasonable Variation Due To Loss of Moisture

Percentage values represent the maximum variation to be considered for application.
Listed values are not tolerances, but limits to what is deemed "reasonable."
Reasonable variation to be applied may be less than value listed based upon findings under Section 2.3.8.3.

Verifying the labeled net weight of packages of:	~~Moisture Allowance~~ Maximum Predetermined Reasonable	Notes

Table 2-3. ~~Moisture Allowances~~"Gray Area" or Predetermined Reasonable Variation Due To Loss of Moisture		
Percentage values represent the maximum variation to be considered for application. Listed values are not tolerances, but limits to what is deemed "reasonable." Reasonable variation to be applied may be less than value listed based upon findings under Section 2.3.8.3.		
	Variation or Gray Area is:	
Flour	3 %	
Dry pet food	3 %	Dry pet food means all extruded dog and cat foods and baked treats packaged in Kraft paper bags and/or cardboard boxes with a moisture content of 13 % or less at time of pack.
Pasta products	3 %	Pasta products means all macaroni, noodle, and like products packaged in kraft paper bags, paperboard cartons, and/or flexible plastic bags with a moisture content of 13 % or less at the time of pack.
Borax	see Section 2.4. Borax	
Cannabis	3 %	*Cannabis* means plant material only, and not products containing *Cannabis*, whether containing more than 0.3 % Total Delta-9 THC (also known as cannabis, Marijuana, or Marihuana) or containing 0.3 % or less Total Delta-9 THC (also known as Hemp).
Wet Tare Only[1]		
Fresh poultry	3 %	Fresh poultry is defined as poultry above a temperature of − 3 °C (26 °F) that yields or gives when pushed with the thumb.
Franks or hot dogs	2.5 %	
Bacon, fresh sausage, and luncheon meats	0 %	For packages of bacon, fresh sausage, and luncheon meats, there is no ~~moisture allowance~~**adjustment for loss of moisture** if there is no free-flowing liquid or absorbent material in contact with the product and the package is cleaned of clinging material. Luncheon meats are any cooked sausage product, loaves, jellied products, cured products, and any sliced sandwich-style meat. This does not include whole hams, briskets, roasts, turkeys, or chickens requiring further preparation to be made into ready-to-eat sliced product. When there is no free-flowing liquid inside the package and there are no absorbent materials in contact with the product, Wet Tare and Used Dried Tare are equivalent.

1

[1] Wet tare procedures must not be used to verify the labeled net weight of packages of meat and poultry packed at an official United States Department of Agriculture (USDA) facility and bearing a USDA seal of inspection. The Food Safety and Inspection Service (FSIS) adopted specific sections of the 2005 4th edition of NIST Handbook 133 by reference in 2008 but not the "Wet Tare" method for determining net weight compliance. FSIS considers the free-flowing liquids in packages of meat and poultry products, including single-ingredient, raw poultry products, to be integral components of these products (see Federal Register, September 9, 2008 [Volume 73, Number 175] [Final Rule – pages 52189-52193]).

Notes:

(1) There is no ~~moisture allowance~~**adjustment for loss of moisture** when inspecting meat and poultry from a USDA inspected plant when Used Dry Tare and "Category A" sampling plans are used.

(2) For the Wet Tare Only section of Table 2-3. "~~Moisture Allowances~~**'Gray Area' or Predetermined Reasonable Variation Due To Loss of Moisture**," free-flowing liquid and liquid absorbed by packaging materials in contact with the product are part of the wet tare. (Note Added 2010)

(Amended 2010, 2013, ~~and~~ 2024**, and XXXX**)

2. To compute ~~moisture allowance~~**a reasonable variation due to loss of moisture**, multiply the labeled quantity by the decimal percent value of the ~~allowance~~**reasonable variation to be applied.** Record this value in Box 13a.

Example:
Labeled net quantity of flour is 907 g (2 lb)
*~~Moisture Allowance~~**Reasonable Variation or "Gray Area"** is 3 % (0.03)*
*~~Moisture Allowance~~**Reasonable Variation or "Gray Area"** = 907 g (2 lb) × 0.03 = 27 g (0.06 lb)*

3. If the ~~Moisture Allowance~~ **Gray Area/Predetermined Reasonable Variation** is known in advance (e.g., flour, pasta products, ***Cannabis,*** ~~and~~ dry pet food**, fresh poultry, and franks or hot dogs**), it can be applied by adjusting the Nominal Gross Weight used to determine the sample package errors. The ~~Moisture Allowance~~**Gray Area/Reasonable Variation** in Box 13a is subtracted from the Nominal Gross Weight to obtain an Adjusted Nominal Gross Weight which is entered in Box 14. The Nominal Gross Weight is defined in Section 2.3.6.1. as the sum of the Labeled Weight and the Average Tare Weight from Box 13.

Example:
Use a Labeled Weight of 907 g (2 lb) and an Average Tare Weight of 14 g (0.03 lb)

The calculation is:

*Labeled Net Quantity 907 g (2 lb) + Average Tare Weight 14 g (0.03 lb) = 921 g (2.03 lb) – ~~Moisture Allowance~~ **Reasonable Variation ("Gray Area")** 27 g (0.06 lb) = Adjusted Nominal Gross Weight of 894 g (1.97 lb)*

This result is entered in Box 14.

4. Determine package errors by subtracting the Adjusted Nominal Gross Weight from the Gross Weights of the Sample Packages.

Example:
The calculation is:

Gross Weight of the Sample Packages – Adjusted Nominal Gross Weight = Package Error

Note: When the Nominal Gross Weight is adjusted by subtracting the ~~Moisture Allowance~~**Gray Area/Reasonable Variation** value(s)**,** the Maximum Allowable Variation(s) is not changed. This is because the errors that will be found in the sample packages have been adjusted by subtracting the ~~Moisture Allowance~~**Gray Area/Reasonable Variation** (e.g., 3 %) from the Nominal Gross Weight. That increases the individual package errors by the amount of the ~~moisture allowance~~**Gray Area/Reasonable Variation** (e.g., 3 %). If the value(s) of the MAV(s) were also adjusted**,** it would result in doubling the ~~allowance~~**adjustment for the Gray Area/Reasonable Variation**. MAV is always based **solely** on the labeled net quantity.
(~~Added 2010~~**Amended XXXX**)

2.3.8.2 Applying ~~Moisture Allowance~~Reasonable Variation Due To Loss of Moisture after Determining Package Errors

Adjustments can be made when the value of the ~~Moisture Allowance~~**Reasonable Variation** is determined following the test (e.g., after the sample fails or if a packer provides **justification for a** reasonable **variation due to** moisture ~~allowance~~**loss** based on data obtained using a scientific method) using the following approach:

If the sample fails the Average Requirement but has no unreasonable package errors **(based upon minus errors exceeding the applicable MAV),** only Step 1 is used. If the sample passes the Average Requirement but fails because the sample included one or more Unreasonable Minus Errors, only Step 2 is used.

If the sample fails the Average and MAV Requirements, both of the following steps are applied.

Use the following approach to apply ~~a Moisture Allowance~~**an adjustment for Reasonable Variation Due to Loss of Moisture** to the Average Requirement after the test is completed:

- the ~~Moisture Allowance~~**Reasonable Variation** is computed;
  Example:
  3 % × 907 g (2 lb) = 27 g (0.06 lb)

- added to the Sample Error Limit;
  Example:
  If the Sample Error Limit is 0.023, add 0.06 to obtain an Adjusted Sample Error Limit of 0.083)

- the Adjusted Sample Error Limit is then compared to the Average Error of the Sample; and

- if the average error (disregarding sign) in Box 18 is smaller than the Adjusted Sample Error Limit, the sample passes.
  HOWEVER,

- if the average error (disregarding sign) in Box 18 is larger than the Adjusted Sample Error Limit, the sample fails.

To apply ~~Moisture Allowance~~**Reasonable Variation Due to Loss of Moisture** to the MAV(s) after the test, the following method is recommended:

- compute ~~Moisture Allowance~~**Reasonable Variation Due to Loss of Moisture**;
  Example:
  3 % × 907 g (2 lb) = 27 g (0.06 lb)

- add to MAV for labeled net quantity of the package to get Adjusted Maximum Allowable Variations **(MAV);**
  Example:

MAV for 907 g (2 lb) is 31.7 g (0.07 lb) + 27 g (0.06 lb) =
Adjusted Maximum Allowable Variation(s) of 58.7 g (0.13 lb)

- compare each minus package error to the Adjusted MAV;
- mark package errors that exceed the Adjusted MAV and record the number of unreasonable minus errors found in the sample; and
- if this number exceeds the number of unreasonable errors allowed, the sample fails.

(~~Added 2010~~**Amended XXXX**)

2.3.8.3. ~~Moisture Allowance~~Reasonable Variation Due To Loss of Moisture or "Gray Area"
When the average error of a lot of fresh poultry, franks/hot dogs, ~~or~~ pasta products**, *Cannabis*, flour, or dry dog food** is minus but does not exceed the established "~~moisture allowance~~**Predetermined Reasonable Variation Due To Loss Of Moisture"** or "gray area," contact the packer or plant management personnel to determine what information is available on the lot in question. **Similarly, when no "Predetermined Reasonable Variation" or "gray area" has been adopted (i.e., not listed in Table 2-3) regarding a commodity under inspection, additional research, inquiry, investigation, and information gathering should be undertaken to determine if the shortage may be due to moisture loss before a compliance decision is rendered.** Questions to the plant management representative may include:

- Is a quality control program in place?
- What information is available concerning the lot in question?
- If net weight checks were completed, what were the results of those checks?
- What adjustments, if any, were made to the target weight?

Note: If the plant management has data on the lot, such data may help to substantiate that the "lot" had met the net content requirements at the point of manufacture.

Additional steps to take in determining whether or not to apply an Adjustment for Reasonable Variations Due To Loss of Moisture:

It is critical to note that Adjustments for Reasonable Variations, consideration of which are based upon "good manufacturing practices" and "good distribution practices," and related determinations of compliance with net content requirements are dependent upon demonstrable adherence by product packers and distributors to those "good" practices. Consideration must be given to, and information should be sought regarding, the following:

- **What is the nature of the product? Is it subject to loss of moisture during distribution?**
- **Have data records been requested from the manufacturer regarding production-run quantity and quality control checks for the lot under inspection? Have they been reviewed for anomalies in filling/packaging processes?**
- **What is the packaging material? Is it porous (subject to product evaporation) or hermetically sealed?**
- **Is the commodity one which should be constantly refrigerated? Was that followed?**
- **How long has the product been in distribution?**
- **Is there evidence that the product was maintained in an inappropriately warm environment for a length of time that would encourage loss of moisture? (i.e., not good distribution practice)**
- **Do industry "best practices" exist for the commodity regarding storage and distribution methods and practices?**
- **Are studies available on equivalent or similar commodities exist regarding quantity variations due to gains or losses of moisture over time?**

The above is not an exhaustive list of considerations that may be applicable. Commodity types and characteristics vary widely, influencing their respective vulnerability to environmental conditions and other factors that may affect loss of moisture resulting in variations from stated net content. In making compliance decisions, the official should be prepared with such collected information and demonstration of appropriate investigation and due process considerations to justify either passage or failure of the packaged commodity test.

The manufacturer must provide data and sufficient information to support and substantiate any claim that any identified shortage in content from the labeled quantity is due to loss of moisture under good manufacturing and distribution practices. If the manufacturer fails to provide such data and information, the official conducting the inspection has reasonable suspicion that the shortage is not due to "unavoidable deviations in good manufacturing practices" or to "reasonable variations during the course of good distribution practices" and may take appropriate enforcement action.

~~This handbook provides "moisture allowances" for some meat and poultry products, flour, pasta products, and dry pet food. These allowances are based on the premise that when the average net weight of a sample is found to be less than the labeled weight, but not by an amount that exceeds the allowable limit, either the lot is declared to be within the moisture allowance or further investigation can be conducted.~~

~~Reasonable variations from net quantity of contents caused by the loss or gain of moisture from the package are permitted when caused by ordinary and customary exposure to conditions that occur under good distribution practices.~~ If evidence is obtained and documented to prove that the lot was shipped from the packaging plant in a short-weight condition or was distributed under inappropriate or damaging distribution practices **(i.e., not restricted to "ordinary and customary exposure to conditions that normally occur under good distribution practices," as stated in Section 1.2.6.),** appropriate enforcement action should be taken.

(Amended 2010 and 2013 **and XXXX**)

NEWMA 2026 Interim Meeting:

No comments were heard from the floor.

The committee had no recommendation for this item.

SWMA 2026 Annual Meeting:

Tory Brewer representing the state of West Virigina and acting chair on the Moisture Allowance Task group commented that he is not advocating for the item but informing the body that there is a new version item and it will be presented to the body in January.

SWMA Laws and Regulations committee recommends this item to be given assigned status.

Additional letters, presentations and data may have been submitted for consideration with this item. Please refer to https://www.ncwm.com/publication-15 to review these documents.

Michael Peeler, New Jersey | Chair
Mike Harrington, Iowa | Vice-Chair
Austin Shepherd, San Diego County | Member
Jose Arriaga, Orange County, California | Member
Christina Osborn, Texas | Member
Brent Price, Gilbarco | AMC Representative
Rowan Hemsing, Measurement Canada | Canadian Technical Advisor
John McGuire, NIST OWM | NIST Technical Advisor
Loren Minnich, NIST OWM | NIST Technical Advisor
Constantine Cotsoradis, NCWM | Committee Coordinator

Laws and Regulations Committee

Appendix A
Quantity-Related Expressions on a Principal Display Panel

DRAFT 03/31/2026

Quantity-Related Expressions on a Principal Display Panel

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Contains Nonbinding Recommendations

Guidance and Recommendations to Manufacturers and Regulators on Best Practices for U.S. Packages

Quantity-Related Expressions Appearing on the Principal Display Panel separate from the Required Statement of Quantity

This document is intended to provide guidance and recommendations regarding best practices for quantity-oriented expressions which appear on a product Principal Display Panel (PDP) in addition to the required Declaration of Net Quantity (DoNQ). The National Council on Weights and Measures (NCWM) has drafted this document to help manufacturers, regulators and retailers assure this added information is truthful, non-misleading and is presented in a manner that complements the required Declaration of Net Quantity.

Introduction

Organization of Document
Discussion of Supplemental Statements

Background

Expression Categories

1. Additional Expression of Quantity
2. Reconstituted Expression of Quantity
3. Derived Unit Expression
4. Comparative Quantity Representation
5. Comparative Performance Representation

Principles & Recommendations by Expression Category

Table 1: Summary of Principles

Table 2: Expression Principles and Guidance

1. Should be useful for consumers
2. Must be accurate and verifiable
3. Must be clear and unambiguous
4. Must not conflict with mandatory Declaration of Net Quantity (DoNQ)
5. Location and prominence must be balanced against Declaration of Net Quantity
6. Should provide consumer relevant information
7. Should not conflict with units of Legal Metrology
8. Must provide directions for how to reconstitute
9. Must provide definition of derived unit
10. Derived unit must be consistent across similar products
11. Comparative expression must appear in its entirety in upper 70% of Principal Display Panel (PDP)
12. If no reference to recognized units of Legal Metrology, must be balanced and complete

Enforcement

Appendix 1: Supplemental Statements

Appendix 2: Illustrations and Discussion of Voluntarily Added Expressions

Resources

Introduction

A number of product package Principal Display Panel (PDP) labels provide additional information regarding product quantity or product performance beyond the information provided in the required Declaration of Net Quantity (DoNQ). In some instances, providing additional information that is not present in the DoNQ can help consumers make more informed product selections. In other instances, providing additional information can help consumers more easily identify the product size they seek. In still other instances, providing additional information can help educate consumers about a new product form or concentration. In short, there are a number of appropriate reasons why a product manufacturer may feel compelled to provide additional information for consumers and also why consumers would want and use this information to make better and more informed product purchase decisions.

While federal and state laws and regulations provide substantial detail regarding the accuracy, location, and appearance of the information appearing in the required Declaration of Net Quantity, provisions for the accuracy, location, and appearance of other quantity-related expressions which manufacturers may add to the PDP relate to general requirements pertaining to product claim content truthful and non-misleading statements. Yet there is little information available to guide manufacturers in the presentation of added quantity-related expressions and information. While the majority of product PDPs that provide consumers additional information do this effectively in a manner that aids consumers, package PDP labels that have caused concerns amongst regulators and consumers have been identified periodically. In several previous instances, certain product PDP labels have been submitted to the NCWM for possible development of regulations targeting a specific practice viewed to be of concern. To date, the consensus of the NCWM has been that the development of this best practice document for manufacturers is a better and more holistic solution as opposed to narrowly targeted regulation. It is believed that best practice information will be valuable to manufacturers at the time they are contemplating package label design, it will assist regulators by providing a source they can direct questions and concerns, and the result will be providing consumers with the best information possible at the time they make value comparisons and product selections.

The recommendations contained herein are intended to provide guidance to manufacturers contemplating the inclusion of additional expressions on their packages to ensure the expressions are clear, accurate, balanced, and non-misleading. These recommendations are also intended to help regulators responsible for package labeling requirements create more consistency in the marketplace.

Organization of Document

This Best Practice document is organized into the following sections to help the user focus on a specific topic, although it is recommended that the document be viewed in its entirety first.

- Discussion of Supplemental Statements
- Background on Additional Expressions
- Categories of Expressions
- Principles and Recommendations by Expression Categories
- Enforcement Discussion
- Supplemental Statement Requirements and Interpretations (Appendix 1)
- Illustrations and Discussion of Voluntarily Added Expressions (Appendix 2)

The recommended procedure for using this document is to first identify the category (or categories) an expression fits within and then to review the detailed principles and recommendations that apply to that category (or categories).

Discussion of Supplemental Statements

A common question is whether statements of the type described in this Best Practice Document would be considered "supplemental statements" and, therefore, not lawfully allowed on the Principal Display Panel (PDP). This question stems from a Fair Packaging and Labeling Act (FPLA) provision that allows supplemental statements that describe the net quantity in nondeceptive terms, provided they appear "at other places on the package" than the net quantity of contents statement and existing regulations that state supplemental statements should not appear on the PDP.

A close review of regulatory precedent reveals surprisingly few statements that have been considered "supplemental" by regulators over the past fifty years. Only one example of formal agency guidance identifying a specific statement as supplemental was located – an FDA determination that a weight declaration is supplemental on a product for which the net contents must be declared in fluid ounces. (FDA Fair Packaging and Labeling Manual Guide 7563.15 – historical – no longer published.) In contrast, numerous statements have been expressly determined to be not supplemental, including directions for use, reconstitution statements (e.g., Makes 1 quart), voluntary declarations of drained weight combined with total package weight including packing liquids, voluntary declarations of count, and metric labeling (prior to metric labeling being mandatory). Numerous other statements have existed in the marketplace for years without challenge. Finally, in an era where consumers increasingly demand more information about the products they purchase and use, regulatory agencies are recognizing that providing accurate information in clear and non-misleading ways would appear to be beneficial to consumers. Additional detail regarding the history of supplemental statements is in Appendix 1.

In light of the regulatory history, the statements in this Best Practice Document are not considered to be prohibited from appearing on the PDP. Every manufacturer, however, must make independent judgments and be prepared to explain why individual statements are permissible. Similarly, regulators may question specific package PDP statements that they believe are misleading or cause consumer confusion.

Background

Manufacturers are responsible for supporting all statements that appear on their labels, including voluntary expressions related to package quantity. Federal and state laws and regulations require voluntary quantity-related claims to be truthful and substantiated and, correspondingly, prohibit false or misleading information. For example, weights and measures laws commonly prohibit selling less than the represented quantity or representing the quantity in a manner that tends to mislead or deceive another person.[2] Consumer protection laws prohibit unfair and deceptive trade practices, such as the failure to possess a reasonable basis (substantiation) for objective claims.[3]

Federal agencies, including the Federal Trade Commission (FTC), the Food and Drug Administration (FDA), State regulatory agencies, and the National Advertising Division of the Council of Better Business Bureaus, may implement laws, regulations, and standards relating to quantity-related information.[4] This document is intended as a resource for both industry and regulators in evaluating voluntary quantity-related statements. For example, industry may find the guidance useful in developing claims and product labeling, and regulators may refer companies to the guidance when questions arise about the usefulness, implementation, or legal status of claims under federal or state requirements.

The purpose of this document is not to redefine or re-interpret existing provisions for the required Declaration of Net Quantity required by the U.S. Fair Packaging and Labeling Act (FPLA) and the regulations promulgated to implement FPLA. This document also does not establish or address methods of sale. Existing Declaration of Net Quantity requirements are the baseline for regulatory compliance, and every recommendation in this document presumes the package already has a compliant Declaration of Net Quantity.

This recommended practice represents the current thinking of the National Council on Weights and Measures (NCWM). As guidance, this document does not establish legally enforceable rights or responsibilities. It does not legally bind either the public, federal or state regulators, and adherence to these guidelines do not ensure legal compliance. Additionally, companies may choose an approach other than the one set forth in this guidance document if it complies with the relevant statutes and regulations.

[2] *See, e.g.*, NIST Handbook 130– Uniform Weights and Measures Law § 15 (Misrepresentation of Quantity).
[3] *See, e.g.*, Federal Trade Commission Act § 5 (15 U.S.C. § 45).
[4] The National Advertising Division of the Council of Better Business Bureaus offers an alternative dispute resolution service that reviews claims made in national advertisements.

Expression Categories

In developing this best practice document, the National Council on Weights and Measures evaluated products in the marketplace to better understand the different kinds of expressions currently appearing on the Principal Display Panel (PDP) in addition to the Declaration of Net Quantity (DoNQ) required by the U.S. Fair Packaging and Labeling Act (FPLA). Some of the expressions employ units of legal metrology (such as pound, ounce, fluid ounce, quart, liter, gram, kilogram, or count) while others appear in non-metrological units which relate to how a consumer might use the product (such as dose, use, load, application, pump, or scoop). Some provide information regarding how much product is produced once the contents have been reconstituted. Some statements are exact, others are inexact. Finally, some statements compare product usage or quantity to other products.

After evaluation of the various expressions currently appearing on the PDP in addition to the Declaration of Net Quantity, the NCWM has created the following five general categories for these statements.

1. Additional Expression of Quantity
2. Reconstituted Expression of Quantity
3. Derived Unit Expression
4. Comparative Quantity Representation
5. Comparative Performance Representation

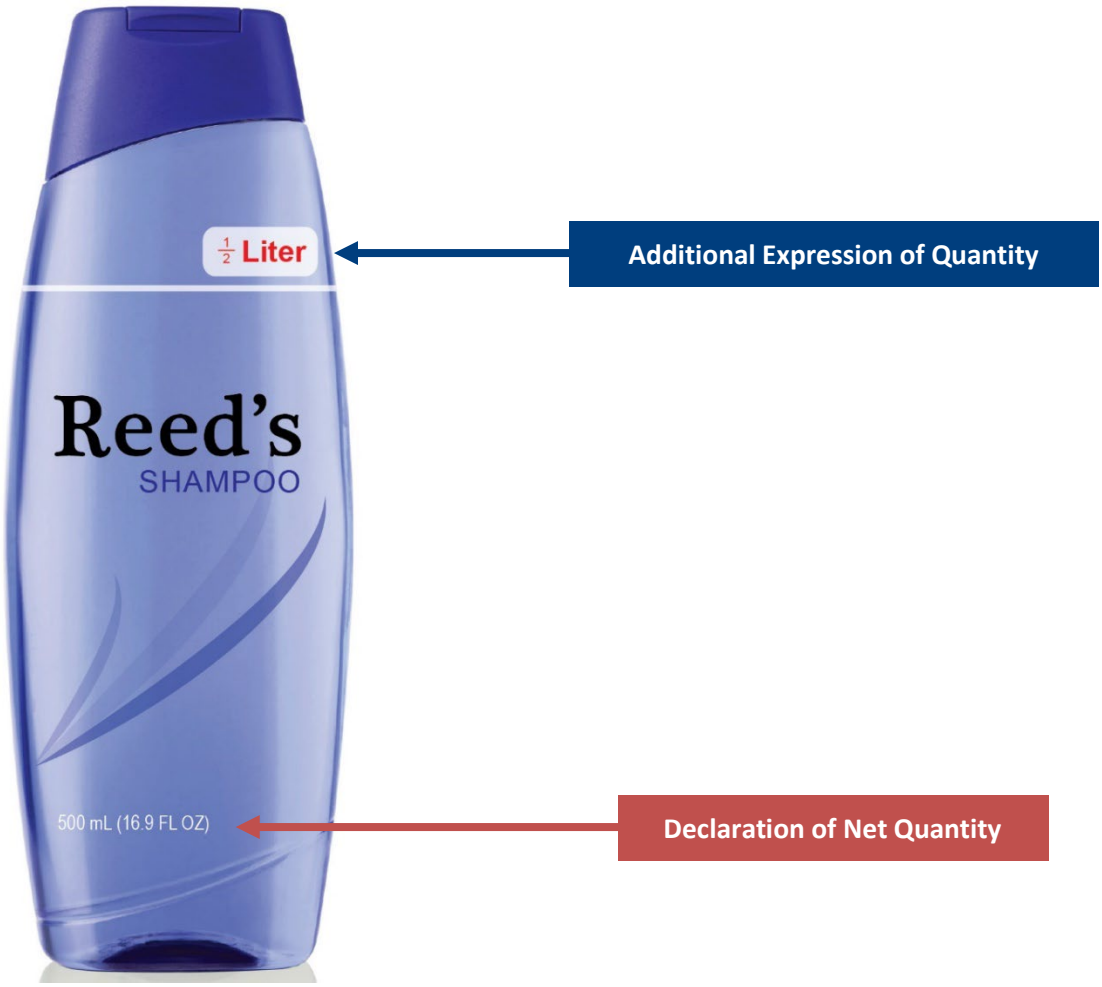
This document provides recommended practices for each of these categories with the overall purpose of promoting the communication of useful information to consumers at the point of purchase.

1. <u>Additional Expression of Quantity (AEQ)</u> – an exact expression of a quantity appearing on the Principal Display Panel (PDP) in terms of legal metrology weight or measure, count or a defined unit of measure which is neither part of nor intended to be part of the required Declaration of Net Quantity (DoNQ). This expression may be identical to a declaration which is part of the DoNQ, may be a declaration equivalent to a declaration contained in the DoNQ, or be another accurate declaration expressing quantity in units or count not present in the DoNQ.

In the package below, the Additional Expression of Quantity (AEQ) would be the "6 Doughnuts" expression which is present on the PDP in addition to the required Declaration of Net Quantity.



Similarly, the AEQ in the package below would be the "1/2 Liter" expression present in addition to the requiredDoNQ.



Additional examples of an Additional Expression of Quantity would be:

- Statement "1 Quart" separately appearing on the PDP from the Declaration of Net Quantity reading "1 Quart (0.946 Liters)"
- Statement "32 Fluid Ounces" separately appearing on the PDP from the Declaration of Net Quantity reading "1 Quart (0.946 Liters)"
- Statement "1.5 Liters" separately appearing on the PDP from the Declaration of Net Quantity reading "1.5 Liters (1.58 Quarts)".
- Statement "3 Pounds" separately appearing on the PDP from the Declaration of Net Quantity reading "3 Pounds (1.36 Kilograms)"
- Statement of "24 Count" separately appearing on the PDP from the Declaration of Net Quantity reading "3 Pounds (1.36 Kilograms)"

- Statement "1/2 Kilogram" separately appearing on the PDP from the Declaration of Net Quantity reading "500 Grams (1.1 Pounds)"

- Statement "2 Dozen Cookies" separately appearing on the PDP from the Declaration of Net Quantity reading "2 Pounds (907 Grams)

- A Declaration of Identity "8 Ounce Steaks" appearing in addition to a PDP Declaration of Net Quantity

2. <u>Reconstituted Expression of Quantity (REQ)</u> – an exact expression appearing on the Principal Display Panel (PDP) in addition to the Declaration of Net Quantity (DoNQ), which details how much product the package contents provide when the product is prepared in accordance with label directions. This expression is most common for products requiring the addition of water but may be appropriate for other products. This expression is generally most useful to consumers when the prescribed directions for product preparation are very straightforward, such as the addition of just water. These statements are less useful when multiple steps or added ingredients are involved.

In the package diagram below, the Reconstituted Expression of Quantity (REQ) would be the "Makes 56 Quarts" expression which is present on the PDP in addition to the required Declaration of Net Quantity (DoNQ).



Additional examples of a Reconstituted Expression of Quantity (REQ) would be:

- Statement "Makes 12 Gallons" separately appearing on the PDP from the Declaration of Net Quantity reading "8 Ounces (226 Grams)"

- Statement "Makes 2 Liters" separately appearing on the PDP from the Declaration of Net Quantity reading "4 Ounces (113 Grams)"

- Statement "Makes 50 Liters" separately appearing on the PDP from the Declaration of Net Quantity reading "1.5 Liters (1.58 Quarts)"

- Statement "Makes 20 Quarts" separately appearing on the PDP from the Declaration of Net Quantity reading "1 Liter (1.05 Quart)"

3. Derived Unit Expression (DUE) – an exact expression appearing on the Principal Display Panel (PDP) in addition to the Declaration of Net Quantity (DoNQ) which expresses a quantity in terms of a unit that is not a recognized unit of weight or measure within Legal Metrology or prevailing systems of measurement (e.g., the U.S. Customary or metric systems). The derived unit may be based upon a recognized unit of measure and/or be based on a measurable factor related to consumer usage.

In the package diagram below, the Derived Unit Expression (DUE) would be the "28 Doses" expression which is present on the PDP in addition to the required Declaration of Net Quantity.



In the following package diagram, the Derived Unit Expression (DUE) would be the “20 Loads” expression which is present on the PDP in addition to the required Declaration of Net Quantity.



Additional examples of a Derived Unit Expression include the following:

- Statement "50 Uses" appearing on the PDP when Declaration of Net Quantity reads "8 Ounces (226 Grams)"
- Statement "75 Applications" appearing on the PDP when Declaration of Net Quantity reads "1.5 Liters (1.58 Quarts)"
- Statement "75 20-mL Applications" appearing on the PDP when Declaration of Net Quantity reads "1.5 Liters (1.58 Quarts)"
- Statement "30 Loads" appearing on the PDP when Declaration of Net Quantity reads "2 Pounds (907 Grams)"

4. <u>Comparative Quantity Representation (CQR)</u> – an expression appearing on the Principal Display Panel (PDP) in addition to the Declaration of Net Quantity (DoNQ) which compares the contents of that package to the contents of a comparable product package produced by the same or a different manufacturer. This comparative statement may be a statement of equivalence (e.g., "This Package Contains the same 24 FL OZ as our old Package"), a statement of differentiation (e.g., "This Box Contains 1 Pound more than Reed's LARGE SIZE Box") or another accurate and verifiable comparative statement.

In the package diagram below, the Comparative Quantity Representation (CQR) would be the "Makes 8 Quarts More than Other 2 LB Juice Mixes" expression which is present on the PDP in addition to the required Declaration of Net Quantity and the optionally added Reconstituted Expression of Quantity (REQ).



In the following package diagram, the Comparative Quantity Representation (CQR) would be, "This 8 Pound package contains the same Volume as our 15 Pound regular product" expression which is present on the PDP in addition to the required Declaration of Net Quantity.



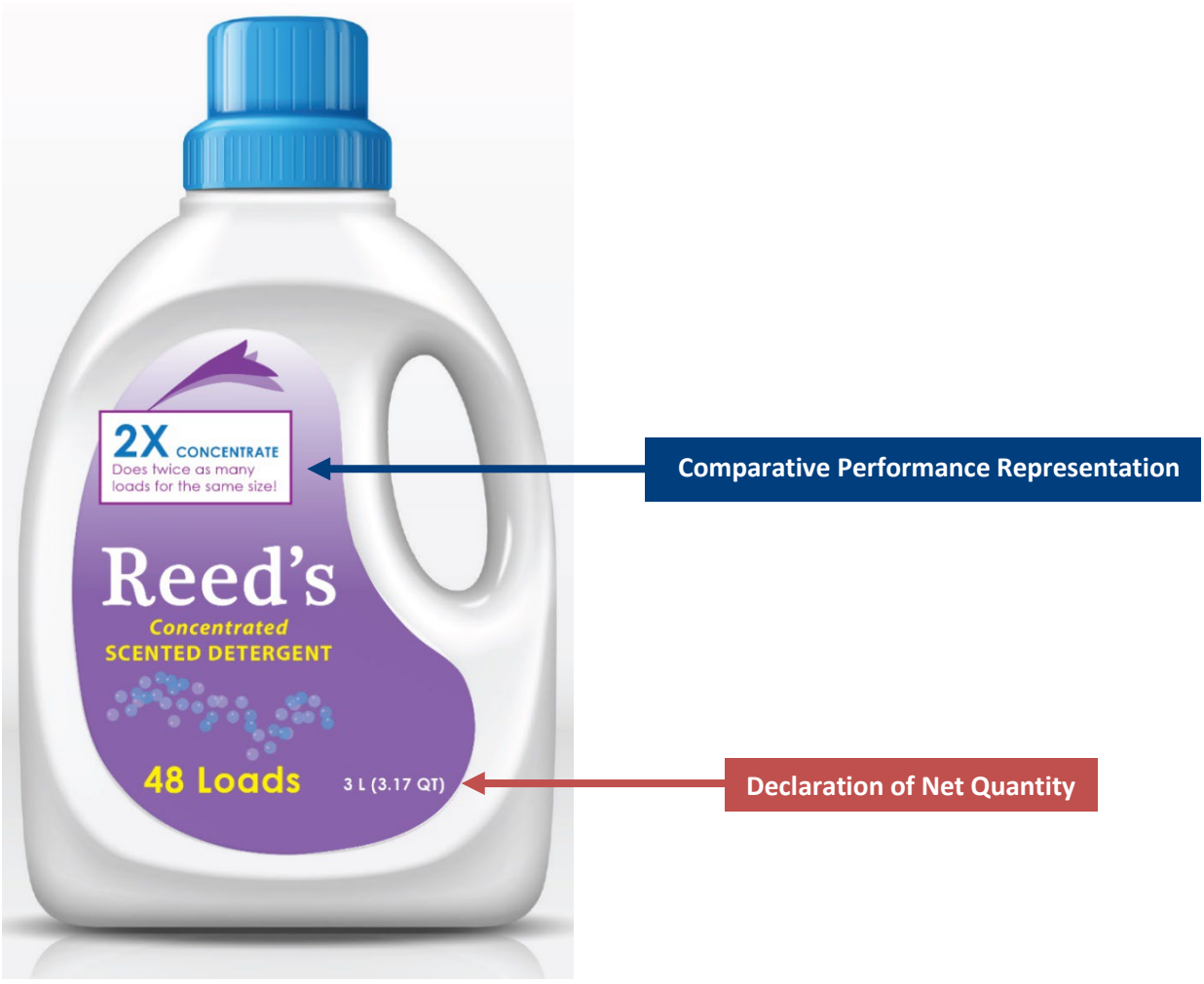
Additional examples of a Comparative Quantity Representation include the following:

- Statement "Contains 1 Pound more than Brand X Largest Size" appearing on the PDP when Declaration of Net Quantity reads "5 Pounds (2.26 Kilograms)"
- Statement "Contains 2 Ounces More than Brand Y 12 Ounce Box" appearing on the PDP when Declaration of Net Quantity reads "14 Ounces (396 Grams) "
- Statement "Contains the Same 1.5 Liters as Our Old Package" appearing on the PDP when Declaration of Net Quantity reads "1.5 Liters (1.58 Quarts)"
- Statement "Contains 5 More Widgets than Brand Z 20 count Super Widget Assortment" appearing on the PDP when Declaration of Net Quantity reads "2 Pounds (907 Grams)"

- Statement "8 Big Rolls = 12 Regular Rolls" appearing on PDP with correct Declaration of Net Quantity for Paper Towel Product.

5. <u>Comparative Performance Representation (CPR)</u> – an expression appearing on the Principal Display Panel (PDP) in addition to the Declaration of Net Quantity (DoNQ) that compares the <u>performance</u> of that package to the performance of a comparable product package produced by the same or a different manufacturer. Examples of Comparative Performance Representations would include expressions such as "Same number of Uses as our Regular 18 Ounce Size", "This Package Does 5 More Loads than Reed's 4 Pound Powder Package". "Lasts as long as Reed's 2 Pound Freshening Bar**".**

In the package diagram below, the Comparative Performance Representation (CPR) would be the "Does twice as many loads for the same size!" expression which is present on the PDP in addition to the required Declaration of Net Quantity and the optionally added Derived Unit Expression (DUE).



Examples of a Comparative Performance Representation include the following:

- Statement "Same Uses as our Regular 18 Ounce Size Product" appearing on the PDP when Declaration of Net Quantity reads "8 Ounces (226 Grams)"

- Statement "20 more Doses than our Regular Size" appearing on the PDP when Declaration of Net Quantity reads "4 Ounces (113 Grams)"

- Statement "Lasts 2 Months Longer than Brand M" appearing on the PDP when Declaration of Net Quantity reads "1.5 Liters (1.58 Quarts)"

- Statement "Double the Absorptive Ability as Regular 20 Pound Products" appearing on the PDP when Declaration of Net Quantity reads "12 Pounds (5.44 Kilograms)"

Principles & Recommendations by Expression Category

In developing category principles and recommendations, the NCWM recognized that some principles should apply broadly across all or most expression categories while others may apply narrowly to a single or limited number of expression categories. To develop principles and recommendations that do not contain category-by-category repetition, the NCWM is providing the information in a tabular fashion.

This document has been drafted according to the schematic below with the presumption that a user would:

1) Determine the applicable expression category from the definitions above,

2) Determine which principles should be evaluated based on Table 1, and

3) Review the additional guidance available in Table 2 as needed. Table 1 identifies the principles generally applicable to each expression category, and Table 2 provides further details and guidance on each principle.

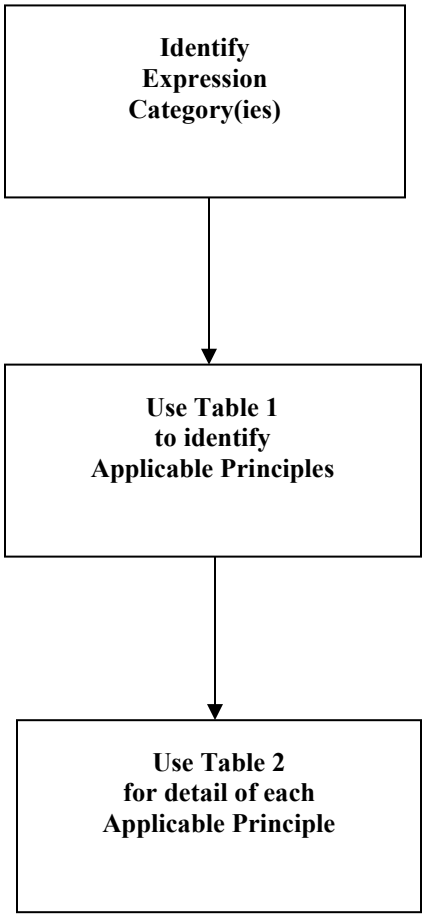


Table 1: Summary of Principles

Principles	**Additional Expression of Quantity** **AEQ** ***"24 Buns"***	**Reconstituted Expression of Quantity** **REQ** ***"Makes 2 gallons"***	**Derived Unit Expression** **DUE** ***"20 Loads"***	**Comparative Quantity Representation** **CQR** ***"40% More Litter Per Pound"***	**Comparative Performance Representation** **CPR** ***"Lasts 25% Longer"***
Expression should provide useful information to help consumers.	X	X	X	X	X
Expression must be accurate and verifiable.	X	X	X	X	X
Expression must be clear and unambiguous.	X	X	X	X	X
Expression must not conflict with mandatory Declaration of Net Quantity(DoNQ).	X	X	X	X	X
Expression location and prominence (size, font, and contrast) must be balanced against the Declaration of Net Quantity (DoNQ).	X	X	X	X	X
Expression should provide Consumer Relevant Information.	X	X	X	X	X
Expressions should not conflict with units of Legal Metrology.			X	X	X
Package Label must provide directions for how to reconstitute.		X			
Package Label must provide definition of derived unit.			X		X
Derived Unit definition must be consistent across similar products.			X		X
Comparative expression must be balanced, complete and appear in its entirety in the upper 70% of the Principal Display Panel (PDP).				X	

Principles	**Additional Expression of Quantity** **AEQ** ***"24 Buns"***	**Reconstituted Expression of Quantity** **REQ** ***"Makes 2 gallons"***	**Derived Unit Expression** **DUE** ***"20 Loads"***	**Comparative Quantity Representation** **CQR** ***"40% More Litter Per Pound"***	**Comparative Performance Representation** **CPR** ***"Lasts 25% Longer"***
Comparative expression which does not contain a reference to recognized units of Legal Metrology must be balanced and complete.					X

Table 2: Expression Principles and Guidance

Principle and Scope	Detailed Guidance
1. Expression should be useful for consumers. *How does the expression provide practical and helpful information to assist consumers?* (Applies to all categories)	Manufacturers should consider whether providing quantity-related information beyond what is in the mandatory Declaration of Net Quantity (DoNQ) will be useful for consumers, and if so, how. Does the expression increase the clarity of quantity information, educate consumers about product quantity or performance, meaningfully assist with value comparisons, or provide other benefits? Generally, an additional quantity expression should have a logical or research-based rationale for why the information is useful to consumers. For example, voluntary expressions may— 1. Help consumers quickly identify a product on the shelf when there are many similar products in various sizes. 2. Help consumers evaluate products used in different forms (liquid or solid) and different levels of concentration – for example, products that require water to be added as compared to those already containing water. 3. Provide a common frame of reference for consumers to make quantity comparisons across multiple possible product forms. 4. Help consumers understand that a new product has a different product concentration or density and how this new product compares to other products. 5. Educate or reassure consumers about a product in comparison to a previous version of the product or a competitive product. Not every product requires a voluntary expression.
2. Expression must be accurate and verifiable. *Is the statement true?* *Can statement accuracy be verified?* (Applies to all categories)	Voluntary expressions that contain quantity-related information must be accurate and verifiable using appropriate objective evaluative procedures and are subject to external evaluation and confirmation. **For expressions using defined units of measure or count**, accuracy should be based on test methodologies recognized by appropriate authorities such as a federal, state or international agency or standards organization. This includes content expressions embedded in a Declaration of Identity. **For expressions relating to product reconstitution**, accuracy should be based upon the directions for product preparation appearing on the product label and test methodologies recognized by appropriate authorities such as a federal, state, or international agency or standards organization. **For Derived Unit Expressions (DUEs) and Comparative Performance Representations (CPR's),** accuracy should be based upon the unit definitions (which

Principle and Scope	Detailed Guidance
	must be present on the product label) and verified using objective testing procedures. For example, since a Derived Unit Expresssion (DUE) does not use a unit of legal metrology, a manufacturer must define that unit on the package label, ensure an appropriate test method or validation process for quantifying the unit has been established, and ensure the expression appearing on the Principal Display Panel (PDP) is accurate and verifiable. Where possible, the accuracy of the declaration should be based on test methodologies recognized by appropriate authorities such as a federal, state or international agency of authority. Statement accuracy must be supportable by manufacturer data and is subject to external evaluation and confirmation.
3. Expression must be Clear and Unambiguous *Is the intended meaning easy to understand?* (Applies to all categories)	Voluntary expressions which contain quantity-related statements must be clear and unambiguous. Short expressions appearing in terms of recognized units with little to no modification such "2 Cups", "5 Yards of Twine", "1.5 Kilograms" or "3 Liters of Water" are typically straightforward and are generally presumed to be clear and unambiguous. The use of additional language accompanying quantity-related terms requires careful consideration and evaluation to ensure their clarity, accuracy, and relevance. Statements that do not provide information to the consumer about the contents of a specific package should not appear on the Principal Display Panel (PDP). 1. Expressions that contain quantity information and appear on the PDP separate from the DoNQ must be accurate, non-misleading, useful, relevant, and verifiable on the basis of the content of the individual package. Statements such as "Approximately 50 Cookies", "About 2 Cups", "300 Pencils on Average" or "Up to 50 Cookies" provide little assurance of the quantity contained in any given individual package. In these examples, a consumer purchasing one package may receive less than the amount stated in the expression, more than the amount stated in the expression or exactly the stated amount. While a statement of "approximately 25 candy bars" may be a technically correct statement based on manufacturing variability, this statement provides a consumer who purchases a single package with little assurance that the specific package they select contains 25 – it may be more, it may be less. As a result, statements using "about," "approximately," "up to" and similar terms are not recommended to appear on the PDP because they are generally considered unclear and ambiguous. 2. An expression such as "Contains Less than 49 Cookies" may be an accurate and verifiable statement but does not provide the consumer with relevant and useful information. 3. An expression such as "Good for 30 Applications" provides clear and verifiable information which can be verifiable whereas expressions such as "Provides Up to 30 Applications" or "30 Applications on Average" may overestimate or underestimate what a consumer should expect. Expressions regarding reconstituted quantities must, clearly indicated information about the amount of ready-to-use product a consumer should expect a package to deliver based on clear label instructions for product preparation. These statements would have to be clearly distinct from the required net quantity information provided in the DoNQ. In many instances, manufacturers use icons to provide reconstituted

Principle and Scope	Detailed Guidance
	information since icons efficiently provide both reconstituted product information and distinctness and separation from the DoNQ. Expressions containing a derived unit require that the manufacturer define the derived unit on the package label so that is it available for consumer inspection prior to product purchase. Expressions that include one or more derived units have to be clearly distinct from the information provided by the required Declaration of Net Quantity (DoNQ). In many instances, manufacturers use icons to provide derived unit information since icons are an effective means to provide additional consumer information which is clearly distinct from the DoNQ. Comparative statements, including Comparative Quantity Representations (CQRs) and Comparative Performance Representations (CPR's), need to be complete and balanced expressions which help the consumer understand how the package with the statement compares to other packages. While product comparison information provided by CQRs and CPR's can often be difficult to communicate in a limited amount of space or limited number of words, it is imperative that a manufacturer ensure a comparative statement appearing on the PDP is a complete, stand-alone statement. While an asterisk may be used to provide additional information substantiating the comparative statement, a manufacturer should not rely on the asterisked information to explain what a comparative statement really means. When an asterisk is used, the added information needs to be provided on the outer package label in a location and font type consistent with other regulatory required information required on other non-PDP panels of the package. Comparative statements must be complete, meaning they can stand on their own in communicating enough information for a consumer to correctly understand the intended message without having to inspect the rest of the package.
4. Expressions must not Conflict with the Information in the Mandatory Declaration of Net Quantity (DoNQ). *Is the statement consistent with the mandatory DoNQ?* (Applies to all categories)	Voluntary expressions which contain quantity-related information should provide information which is equivalent to or consistent with the information present in the required DoNQ. Expressions may: 1. Simply repeat a portion of the of the DoNQ, such as "2 Pounds" 2. Provide an equivalent information such as "4 Quarts" when DoNQ states "1 gallon". 3. Provide accurate and consistent information such as "Over 1 Quart" when DoNQ is "1 Liter". 4. Provide information in terms of other legal metrological units not represented in the DoNQ such as a volume declaration when product is labeled "2 pounds". 5. Provide information in terms of count that is not provided in the DoNQ 6. Provide information on the reconstituted quantity consistent with the declared net quantity and preparation instructions. 7. Provide information in terms of a derived unit consistent with the definition of the derived unit provided on the package. 8. Provide comparative information that accurately accounts for the quantity information in the DoNQ Information provided in voluntary expressions on the package Principal Display Panel (PDP) should supplement the information required to be provided in the DoNQ. Voluntary expressions should be evaluated by the manufacturer to ensure the message and information is consistent with what is provided in the DoNQ. For example, if a package label defines the term "dose" to be 2 fluid ounces, a package containing 1 quart

Principle and Scope	Detailed Guidance
	with an expression in doses should state the package contains 16 doses. An expression of "17 Doses" or "20 Doses" would not be consistent. Similarly, a package labeled "1 Liter" should not contain an expression such as "contains at least 1 Liter" since that is fundamentally a different statement.
5. Expression location and prominence (size, font, and contrast) must be considered in relation to the Declaration of Net Quantity (DoNQ) to ensure appropriate balance. *Does the expression location, size, font contrast, and other attributes effectively provide information in addition to the DoNQ?* (Applies to all categories.)	Manufacturers should consider the cumulative effects of quantity statement location, size, font, color, and contrast on the package in relation to those of other Principal Display Panel (PDP) elements and statements. The location, size, and contrast of a voluntary quantity-related expression should help the consumer make informed value comparisons at the point of purchase and not minimize the visibility or purpose of other information required to appear on the PDP. Importantly, an expression should complement or reinforce the information provided by the DoNQ and should not compete with or replace the visibility of the required DoNQ . When an expression is added to the PDP, the manufacturer should consider the location, size, font, contrast, and other attributes of the expression in relation to the location, size, font and contrast of the DoNQ to ensure they are reasonably balanced. The goal for reasonable balance is to ensure the expression and DoNQ information are effectively communicated to the consumer at the point of purchase. Reasonable balance does not mandate that voluntary expressions must match the size, font, contrast, or other attributes of the DoNQ. Reasonable balance does allow manufacturers to adjust the size (generally equal or larger), adjust the font (generally bolder), modify the contrast (brighter colors, use of icons, banners, and backgrounds) and determine a location (top 70% of the PDP, lower 30% of PDP, distance from the DoNQ), to maximize the visibility of the added expression and the DoNQ. Combining a voluntary quantity expression and the required DoNQ into a common box or other graphical/visual representation that appears to link both is not recommended. The DoNQ is mandated in law and regulation to have separation from other expressions on the PDP and added expressions need to be clearly separate from the DoNQ but in terms of required separation and visual presentation. Since a DoNQ is mandated and required to appear in a limited portion of the PDP where consumers know where it can be found, manufacturers are generally going to design a voluntary expression to maximize the chances the expression is also seen at the point of purchase by the consumer. A voluntarily added expression will generally be of equal or larger size, a different font, and higher contrast than the information provided in the DoNQ since these characteristics are important to help ensure a consumer sees and understands these statements at the time a consumer is making product selections. Not every product has or needs to have a voluntary expression related to quantity added to the PDP, and as a result, for those packages that a manufacturer believes warrant this added information, the manufacturer is attempting to make this information visible to a consumer who may not be necessarily looking for this information. As a result, the manufacturer is going to give this added expression greater prominence than the DoNQ. In doing this, the manufacturer must ensure the visibility of the information provided in the DoNQ is not compromised by the use of fonts, colors, and contrasts which largely mask the visibility of this information at the expense of the added expressions.

Principle and Scope	Detailed Guidance
	In general, an expression that repeats information present in the required DoNQ is more likely to be useful to a consumer if it is substantially separated from the DoNQ. Similarly, an expression that provides quantity-related information that is not present in DoNQ, (for example, count for a package labeled by weight) may be more useful to a consumer if it is located closer to the DoNQ since the consumer will look for and benefit from having all the net quantity-related information in one general area of the product label. Mixing fonts and using icons as part of the added expression can be effective ways to help facilitate conveying additional information in a manner that is clearly separate from the DoNQ. In the end, the manufacturer electing to provide additional information is responsible for ensuring the combination of the expression content and detail, size, location, font, and contrast provide information in addition to the DoNQ for the typical consumer. When a comparative statement is planned, the manufacturer needs to determine where and how this information is best provided for the benefit of the consumer. Since comparisons can have multiple words, which may differ in font and contrast, a manufacturer must fully consider the location and font of each individual word/term of the expression as well as the overall statement in total in to assess how this might affect the information present in the required DoNQ . Examples that help illustrate recommended practices for voluntarily added quantity expressions are provided in Appendix 2.
6. Expression information must be relevant to the consumer purchasing or using the product. *Are the conditions of use well defined and do the statements reflect real-life usage expectations?* (Applies to all categories) Important for derived unit statements and comparative statements based on derived units	Voluntary expressions should provide information that a consumer purchasing the product is likely to want or need to know prior to purchase. Similarly, the voluntarily added information provided should reasonably relate to how a normal user would use the product. Statements about reconstitution can help educate consumers about product quantity, especially when similar products are present in different product forms such as ready-to-use liquids, liquid concentrates, and solids. For example, an expression containing information about the amount of product a consumer can expect when package contents are reconstituted should relate to the purpose of that product. Knowing the contents of a package reliably prepares 5 gallons or 10 gallons of drink can be useful when a consumer is planning to provide beverages for a large group or has a dispenser with a 5-gallon capacity. Similarly, an expression providing information in terms of a recognizable derived unit is more helpful and relevant to a consumer when the product is used in a regular and consistent manner by most users. For example, providing health or medicinal information based on “uses” or “doses” can be useful to consumers as they consider how long they might need to want to use the product. Similarly, providing laundry product information based on “loads” can be useful in helping consumers relate to varying degrees of product concentration, especially when a dosing cup is provided to reinforce the quantity expression. Generally, a derived unit expression should have a logical or research-based rationale for why this information is useful to consumers. On the other hand, statements such as “Makes 60 Waffles” or “Washes 18 Floors” may be less helpful or useful due to variability in factors associated with making waffles such as ingredients, equipment, and actual size, or with the size of rooms in a house, variation in product concentration, differences in expected performance. In these instances, the relevance of the declaration seems less uniform, and the specificity of the expression is less likely to apply broadly to a large subset of consumers.

Principle and Scope	Detailed Guidance
7. Expressions should not conflict with units of Legal Metrology *Is the expression consistent with units of Legal Metrology?* *Is the expression exaggerating or minimizing a unit of measure?* *Does the expression have the potential to create confusion?* (Applies to Derived Unit Expressions (DUE's), Comparative Quantity Representations (CQR's) and Comparative Performance Representations (CPR's)	Voluntary expressions that provide quantity-related information in terms of derived units should ensure the expressions do not conflict with or redefine a unit of legal metrology. Units of legal metrology such as ounce, pound, ton, pint, quart, cup, liter, foot, inch, yard, bushel, etc., have precise definitions, and incorporating these terms into the definition of a derived unit requires careful consideration to ensure the derived unit is clear and non-misleading. Voluntary expressions should avoid practices that could create confusion regarding existing units of measure. For example, federal Law prohibits any term qualifying a unit of weight, measure, or count that tends to exaggerate the amount of product in a container, such as "jumbo quart" or "full gallon". In addition to complying with this requirement, manufacturers should also avoid other practices that may create confusion regarding existing units of measure, such as using a "10-inch foot". Statements of this type provide no added value to consumers and can be viewed as misleading.
8. Expressions containing reconstituted product information must provide directions for reconstitution on the product label. If an expression states how much product the package can make, the directions for how to prepare the product must be provided on the label. (Applies to REQ's)	When a Reconstituted Expression of Quantity (REQ) is present on the Principal Display Panel (PDP), the manufacturer also must provide information on the package label clearly detailing how the product is recommended to be reconstituted for consumer inspection prior to product purchase. Consumers should be able to tell what other products, ingredients, or equipment will be needed to prepare the product for use. A consumer should be able to readily view and accurately understand the directions to reconstitute the product prior to making a purchase decision. The information detailing the reconstitution directions should be located on the outer package (not on the bottom of the package) for consumer inspection prior to product purchase. The location, size and appearance of this accompanying information should be sized appropriately to ensure a consumer can readily find this information either before purchase or during use. A package can provide reconstitution details for how to prepare the entire package contents or a portion of the contents. For example, when a product states "Makes 64 quarts", providing consumers with directions for making 2 quarts is encouraged since it is more practical for most consumers not to make all 64 quarts at one time in one container.
9. Expressions containing Derived Units must provide a definition of that unit on the package label. If an expression conveys a quantity in terms of a Unit that is not defined	A consumer should be able to readily view and accurately understand a derived unit statement prior to making a purchase decision. Since a derived unit is not a recognized unit of Legal Metrology, information that defines, and, if necessary, explains the derived unit to ensure consumer understanding should be provided. The information defining and explaining the derived unit should be located on the outer package (not on the bottom of the package) for consumer inspection prior to product purchase. The location, size, and appearance of this accompanying information should be consistent with the required regulatory language, such as the required product

Principle and Scope	Detailed Guidance
in Legal Metrology, the Unit must be adequately defined on the label. information (Applies to Derived Unit Expressions (DUE's), Comparative Quantity Representations (CQR's) and Comparative Performance Representations (CPR's)	responsible party statement. Consistent with such requirements, the information must be legible and may be placed on the side or back panels of the package. It may have a font smaller than that required for the Declaration of Net Quantity (DoNQ), which is often larger than other required text.
10. Expressions that employ the same Derived Unit term must use the same definition for the Derived Unit. The definition for that Derived Unit must be consistent across similar products using consistent terms amongst similar products. *Is the statement based on a consistent metric and meaning within a product category?* Important for derived unit statements and comparative statements based on derived units (Applies to Derived Unit Expressions (DUE's), Comparative Quantity Representations (CQR's) and Comparative Performance Representations (CPR's)	For statements that are not based on "units" of Legal Metrology, consumers need confidence that expressions appearing on similar and competing product packages can be applied consistently to facilitate value comparisons. Inconsistent definitions for the same "derived unit" or the use of different "derived units" by products in the same product category have the potential to confuse or mislead consumers. Manufacturers using expressions containing derived units are responsible for ensuring that they help consumers and aid in value comparison and purchase decisions. When different definitions are used for similar products, individual companies and trade groups must work together to develop and implement consistent definitions. For example, if competing laundry detergent packages declare the number of "loads", consumers can rely on this declaration only if the term "loads" is defined in a common way, even if one product is a liquid, a second is a liquid concentrate, and a third is a powder. The uniform, common definition can be defined based on common product attributes--such as a delivered concentration or a degree or recognized performance, a defined quantity of product, or another consumer-related parameter. The key attributes of a derived unit that they must be objective, measurable, and verifiable by a third party. Multiple definitions of a derived unit between similar products or competing products neutralize the potential benefit provided by recognizing derived units, and the prevention of multiple definitions should be aggressively enforced and policed within product categories to promote consistency and uniformity. Similarly, the creation of similar-but-different derived units should also be avoided generally. For example, company A should not create an "A-dose", and company B should not create a "B-dose" to compete against other products bearing the term "dose". Consumers need confidence that comparative statements are based on consistent terms to facilitate value comparison. Using inconsistent terms in comparative claims has the potential to confuse or mislead consumers.

Principle and Scope	Detailed Guidance
11. Comparative Expressions which contain a reference to a unit of Legal Metrology must be complete and balanced statements and must appear entirely in the upper 70% of the PDP. (Applies to CQRs)	Manufacturer interest in making comparative statements on their packages has increased as new product technologies have been incorporated into products, resulting in better or longer performance, greater product efficiency, more concentrated products, and lighter-weight products. Traditional comparisons based solely on use of product net content declarations may not provide consumers with sufficient information necessary for consumers to make a fully informed decision. Comparative statements are one means by which manufacturers can provide information about new product forms and performance to consumers. They are also a means by which manufacturers can compare their products to competing products. Manufacturers must carefully consider using comparative statements on the Principal Display panel to ensure the message is complete, clear, correct, relevant, and non-misleading. They also need to ensure that consumers do not interpret a CQR (or parts thereof) as the required DoNQ. Comparative Quantity Representations may provide consumers with important information but also have the potential to confuse or mislead consumers about products. These statements can vary in length, word choice, use of icons and pictograms, the quantity(ies) being compared, and can use limitless choices of fonts, colors, and contrasts to emphasize all or certain parts of a comparative statement. A manufacturer must carefully consider how the CQR content, location, font, and contrast will appear in conjunction with the package's required DoNQ to help facilitate consumers ability to make accurate value comparisons. This is specifically true for a CQR since the weight or measure terms appearing in a CQR have the potential to be interpreted as aDeclaration of Net Quantity. To help ensure CQRs (or portions of the comparative statement) which contain references to units of Legal Metrology are not misinterpreted as net content information, the following is recommended: 1. A comparative expression comprised of one or more units of Legal Metrology must appear in its entirety in the upper 70% of the PDP or on another panel of the package. It should not appear in total or part in the lower 30% of the PDP. 2. A comparative expression comprised of one of more units of Legal Metrology must be a complete statement with clear and explicit reference to the products that are being compared. For example, "This product provides 40% more product than the 20 ounce size". Just saying "40% more product" is not a complete statement. Use of asterisks and asterisked statements located elsewhere on the label are not recommended as means to provide a complete statement. If a statement appears on the PDP, it must be a complete statement on the PDP.

Principle and Scope	Detailed Guidance
	3. Information gathered on comparative products should use the same testing methodology as that used for the package bearing the CQR, unless it is not technically feasible and an alternate objective test method is used. 4. While a CQR is not required to name another brand, it is the manufacturer's responsibility to ensure the CQR statement is accurate and valid. Although CQR accuracy is often easy to assess since the CQR and DoNQ are both present on the PDP, CQR statements are still required to be accurate and verifiable, should be supported by manufacturer data, and are subject to external evaluation and confirmation. 5. A comparative expression comprised of one or more units of Legal Metrology must provide equal emphasis on the units of measure. For example, "This **46 OZ** package provides over 100% more product than our **22 OZ** package". 6. While asterisks may be used in conjunction with a CQR, asterisked information should be used to provide a reference for the basis of the expression and not explain what the CQR really means. A CQR needs to be able to stand on its own. 7. To aid in verification, it is critically important that comparative statements be complete and include correct references to the package and the comparative product(s) to which this package is being compared. For example, a CQR should be a complete statement that makes clear the quantity being compared, the product used in comparison and, if the comparison appears unusual, enough context to ensure the statement is reasonably clear. A consumer's first reaction to a CQR should not be, "that statement is unclear or doesn't make sense". 8. When using a CQR, the comparative product should be another product currently marketed in that general marketplace or the previously marketed version to the same or similar product to make the representation relevant to the consumer. Comparing to a product marketed five years ago provides little value for most consumers. Manufacturers are responsible for ensuring comparative expressions are complete and clear.

Principle and Scope	Detailed Guidance
12. Comparative expression which does not contain a reference to recognized units of Legal Metrology must be balanced and complete. Applies to Comparative Performance Representations (CPR's)	Manufacturer interest in making comparative statements on their packages has increased as new product technologies have been incorporated into products, resulting in better or longer performance, greater product efficiency, more concentrated products, and lighter-weight products. Traditional comparisons based solely on use of product net content declarations may not provide consumers with sufficient information necessary for consumers to make a fully informed decision. Comparative statements are one means by which manufacturers can provide information about new product forms and performance to consumers. They are also a means by which manufacturers can compare their products to competing products. Manufacturers must carefully consider using Comparative Performance Representations (CPR's) on the Principal Display (PDP) panel to ensure the message is complete, clear, correct, relevant, and non-misleading. Comparative Performance Representations may provide consumers with important information regarding how well or long a product might perform but also have the potential to confuse or mislead consumers about products. These statements can vary in length, word choice, use of icons and pictograms, the quantity(ies) being compared, and can use limitless choices of fonts, colors, and contrasts to emphasize all or certain parts of a comparative statement. A manufacturer must carefully consider how the CPR content, location, font, and contrast will appear in conjunction with the package's required Declaration of Net Quantity (DoNQ) and other expressions to help facilitate consumers' ability to make accurate value comparisons. To help ensure CPR's are clear and not misinterpreted, the following is recommended: 1. A comparative performance representation must be a complete statement with clear and explicit reference to the products that are being compared. For example, "This new 20-ounce package provides the same number of uses as our old 46-ounce package." or "This 20-ounce concentrate provides 100% more uses over our 20-ounce unconcentrated product". Just saying "100% more uses." is not a complete statement. The use of asterisks and asterisked statements located elsewhere on the label are not recommended as a means to provide a complete statement. If a statement appears on the PDP, it must be a complete statement on the PDP. 2. Information gathered on comparative products should use the same testing methodology as that used for the package bearing the CPR, Information gathered on comparative products should use the same testing methodology as that used for the package bearing the CPR,

Principle and Scope	Detailed Guidance
	3. While a CPR is not required to name another brand, it is the manufacturer's responsibility to ensure the CPR statement is accurate and valid. Although CPR accuracy is often easy to assess since the CPR and DoNQ are both present on the PDP, CPR statements are still required to be accurate and verifiable, should be supported by manufacturer data, and are subject to external evaluation and confirmation. 4. A comparative expression comprised of one or more units must provide equal emphasis on the units of measure. For example, "This **40 Load** package provides double the uses as our **20 Load** package". 5. While asterisks may be used in conjunction with a CPR, asterisked information should be used to provide a reference for the basis of the expression and not explain what the CPR really means. A CPR needs to be able to stand on its own. 6. To aid in verification, it is critically important that comparative statements be complete and include correct references to the package and the comparative product(s) to which this package is being compared. For example, a CPR should be a complete statement that makes clear the quantity being compared, the product used in comparison and, if the comparison appears unusual, enough context to ensure the statement is reasonably clear. A consumer's first reaction to a CPR should not be, "that statement is unclear or doesn't make sense". 7. When using a CPR, the comparative product should be another product currently marketed in that general marketplace or the previously marketed version to the same or similar product to make the representation relevant to the consumer. Comparing to a product marketed five years ago provides little value for most consumers.

Enforcement

Voluntarily added quantity-related expressions are distinct from the Declaration of Net Quantity (DoNQ) and therefore require a different enforcement strategy. The DoNQ is mandatory and is enforced using practices developed over many decades and set out in extensive detail in applicable laws, regulations, and guidance. In contrast, as a type of voluntary label claim, voluntary statements are enforced in the same way as other voluntary claims.

Importantly, voluntary statements are subject to a wide range of legal and regulatory requirements. Some of these requirements are general in nature, and some are specific to net contents. An example of a general requirement is the FDA's prohibition of false or misleading statements of any kind on food labels. Specific prohibitions are set out in many state laws and regulations, such as laws that prohibit misrepresentations relating to quantity. For example, Florida law provides that "no person shall sell or offer or exposure for sale less than the quantity he or she represents." Wisconsin law prohibits representations “in any manner a false quantity or price in connection with the purchase or sale, or any advertising thereof, of any commodity, thing or service.”

These and other requirements for voluntary statements are legal obligations and companies must be prepared to demonstrate compliance as necessary. Enforcement practices that are selected will depend on the situation and may include a range of tactics:

- Informal inquiries (e.g., questions during inspections or via a phone call)
    - Written requests to demonstrate compliance (e.g., letters sent to the attention of a company's executives or legal/regulatory departments), which may be initiated by either regulators or by industry in the event of a potential competitive dispute.
    - Written warnings from a regulatory agency that a particular product label is false, misleading, or otherwise violative of a specific requirement.
- Negotiations to resolve labeling concerns, such as a regulatory agency seeking a consent decree or a company asking the National Advertising Division (NAD) to resolve a competitive dispute.
- Formal legal challenges, such as product seizures or stop-sale orders, where the relevant requirements for such actions are met.

These guidelines are intended to aid in all such compliance efforts as appropriate. For example:

- A regulatory agency may provide the guidelines as a resource to help educate a company about legal requirements and best practices for clear and non-misleading statements.
- A company may provide the guidelines to a competitor that is making what is believed to be an unsupported or misleading claim, to help emphasize the seriousness of quantity-related statements.
- The guidelines may help define the issues that need to be addressed in a legal negotiation or proceeding.

Due to the inherent nature and diversity of voluntary statements, the guidelines' specific use will be case-specific.

Appendix 1
Supplemental Statements

There has been discussion regarding when, where or how added quantity-related information can appear on a package label. The required Declaration of Net Quantity (DoNQ) statement is specific to its content and location in the Fair Packaging and Labeling Act (FPLA) and in specific product regulations. Conversely, FPLA and federal agency regulations speak minimally and vaguely to the subject of adding other accurate information to the product label.

This Appendix summarizes the legal/regulatory history regarding use of "supplemental statements" which are mentioned in FPLA, and in agency regulations (such as those promulgated by the Federal Trade Commission (FTC) and the Food and Drug Administration (FDA)).

Fair Packaging and Labeling Act (FPLA)

The supplemental statement requirement comes from FPLA Section 4(b):

> **"Requirements of labeling; placement, form, and contents of statement of quantity; supplemental statement of quantity**
>
> **(b) Supplemental statements**
>
> No person … shall distribute … any packaged consumer commodity if any qualifying words or phrases appear in conjunction with the separate statement of the net quantity of contents required by subsection (a), but nothing … shall prohibit supplemental statements, at other places on the package, describing in nondeceptive terms the net quantity of contents: *Provided*, That such supplemental statements of net quantity of contents shall not include any term qualifying a unit of weight or mass, measure, or count that tends to exaggerate the amount of the commodity contained in the package." (15 U.S.C. 1453)

There are three parts to this information from FPLA:

1. No mandatory language is specified for the supplemental statement.
2. Supplemental statements are allowed "at other places".
3. Terms that exaggerate an amount (the net quantity) are not allowed.

What is a Supplemental Statement?

There is no official definition in the FPLA or regulations promulgated by the Federal Trade Commission (FTC) and the Food and Drug Administration (FDA). U.S. congressional legislative history has provided this example: "6 oz. of fast acting X detergent", and in the following, Congress has said this is a "supplemental statement" that can be "apart from the required net quantity statement":

> "Subsection 4(b) prohibits the qualification of the separate quantity statement by any modifying words or phrases. However, a supplemental statement of the net quantity of contents set apart from the separate net quantity statemen, required by the bill, may be modified by nondeceptive words or phrases, so long as such words or phrases do not tend to exaggerate the amount of the commodity contained in the package. For example, where a package contains a separate net quantity statement in conformity with promulgated regulations, such as '6 oz. net weight,' the package could also contain in a supplemental statement, apart from the required net quantity statement, the phrase '6 oz. of fast acting X detergent' but could not contain the statement '6 jumbo oz. of X detergent' at any place on the package." (Senate Report 1186 at 5-6)

Food and Drug Administration (FDA)

The FDA administers the FPLA with respect to foods, drugs, cosmetics and medical devices. Pursuant to their authority under FPLA, FDA has issued food labeling regulations under Title 21, Chapter 1, Subchapter B in the Code of Federal Regulations. 21 CFR §101.7(o) states:

> "Nothing in this section shall prohibit supplemental statements at locations other than the principal display panel(s) describing in nondeceptive terms the net quantity of contents; *Provided,* that such supplemental statements of net quantity of contents shall not include any term qualifying a unit of weight, measure, or count that tends to exaggerate the amount of the food contained in the package; for example, 'jumbo quart' and 'full gallon'."

What this means is that the Declaration of Net Quantity may not contain statements designed to imply that one product is different in quantity from other products that declare the same net contents. What this also means is that Congress wanted the required declaration to be separate from supplemental statements designed to promote product sales. 21 CFR §101.7(o) ensures that such separation exists by permitting supplementary net quantity statements on label panels other than the Principal Display Panel (PDP). However, there is no indication in Senate Report No. 1186, or elsewhere in the legislative history of the FPLA that congressional concern about a "supplementary statement" was intended to encompass other forms of non-misleading information about the quantity of contents other than the one required. To the contrary, the broad congressional policy in Section 2 of the FPLA states:

> "Packages and labels should enable consumers to obtain accurate information as to the quantity of the contents and should facilitate value comparisons". (15 U.S.C. 1451)

Note: Declaration of a statement of net quantity of contents in terms of both drained weight and net weight would not be inconsistent with this policy because such declarations advise consumers of the amount of food and the accompanying packing medium, thereby assisting purchasing decisions. [62 Fed. Reg. 9833-34 (Mar. 4, 1997)]

Federal Trade Commission (FTC)

The FTC administers the FPLA with respect to other "consumer commodities" that are expended in the household. Pursuant to their authority under FPLA, FTC has issued labeling regulations under Title 16, Chapter 1, Subchapter E in the Code of Federal Regulations. 16 CFR §500.24 states:

> **"Supplemental statements.**
>
> Nothing contained in the regulations in this part shall prohibit supplemental statements, at locations other than the principal display panel, describing in non-deceptive terms the net quantity of contents … Required combination declarations of net quantity of contents (for example, a combination of net weight or mass plus numerical count, numerical count plus dimensions of the commodity, etc.) are not regarded as supplemental net quantity statements and shall be located on the principal display panel. Dilution directions or other similar directions for use are not regarded as supplemental net quantity statements and may be located on the principal display panel. Size characterizations in compliance with standards promulgated under section 5(c)(1) of the Act may appear on the principal display panel."

Uniform Packaging and Labeling Regulation (UPLR)

The Uniform Packaging and Labeling Regulation (UPLR) was adopted by the National Council on Weights and Measures (NCWM) to provide accurate and adequate information on packages as to the identity and quantity of contents

so that purchasers can make price and quantity comparisons to parallel regulations adopted by federal agencies under FPLA. Section 6.12 in NIST Handbook 130 states:

> "**Supplementary Quantity Declarations -**
>
> The required quantity declaration may be supplemented by one or more declarations of weight, measure, or count, such declaration appearing other than on a principal display panel."

FDA Interpretations

In the absence of a definition for supplemental statements, several instances emerged over time which required FDA to declare what is and what is not supplemental. The first instance is an FDA example when the regulation was issued, the remaining are cases where FDA expressed an opinion based on a marketplace circumstance.

- On a commodity requiring a declaration of fluid measure, a weight declaration IS supplemental when it is included as part of the Declaration of Net Quantity Statement.
- On a commodity for which weight or volume is sufficient (e.g., sliced cheese, candy bars at Halloween, where weight is enough), count may be voluntarily added and IS NOT supplemental.
- A voluntary declaration of drained weight IS NOT supplemental when combined with a mandatory declaration of the total package weight, including packing liquids.
- A reconstitution declaration such as "makes 1 quart" IS NOT supplemental.
- Metric labeling WAS NOT supplemental when it was voluntarily provided. Metric labeling is now required for most products.

Metric Labeling

Metric labeling is not considered supplemental:

> "(p) A separate statement of the net quantity of contents in terms of the metric system is not regarded as a supplemental statement and an accurate statement of the net quantity of contents in terms of the metric system of weight or measure may also appear on the principal display panel or on other panels." [32 Federal Register 10729, 10733 (July 21, 1967)]

FTC Interpretations

FTC has similarly provided interpretations of their regulation since it has been issued.

- Required combination Declarations of Net Quantity of contents (e.g., net weight plus count) ARE NOT supplemental (seems to be limited to mandatory and differs from FDA).
- Dilution directions or other similar directions for use ARE NOT supplemental.
- Size characterizations in compliance with standards promulgated under section 5(c)(1) of the Act ARE NOT supplemental.
- Performance claims per letter from Robin Rosen Spector, Attorney, FTC Division of Enforcement, Bureau of Consumer Protection, to Michael Tomenga, Nov. 4, 2010:

- "Commission staff believes that the 'lasts the same as' statement on the Kingsford charcoal packaging does not qualify the package's unit of weight. Consumers would likely reasonably interpret that statement as a performance claim about the product. The claim appears as a distinct item on the display panel and is separated from the net quantity declaration in accordance with the requirements of the FPLA regulations. Therefore, we would not recommend that the Commission bring a law enforcement action for violations of the FPLA based on the facts presented in your letter. Nevertheless, under section 5 of the Federal Trade Commission Act, the company must possess and rely upon reasonable substantiation for the claim and the claim should not be deceptive. See FTC Policy Statements on Deception and Substantiation: https://www.ftc.gov/legal-library/browse/ftc-policy-statement-deception and https://www.ftc.gov/legal-library/browse/ftc-policy-statement-regarding-advertising-substantiation

• Performance claims per letter from James A. Kohm, Associate Director, FTC Division of Enforcement, Bureau of Consumer Protection, to David Sefcik, Nov. 30, 2016:

  "All of the quantity-related expressions in the Subcommittee's draft guidance are descriptive or supplemental quantity information. Therefore, this information can only appear elsewhere on the packaging (anywhere except the principal display panel). See 16 CFR Sections 500.6(b) ('The declaration of net quantity shall appear…on the principal display panel…and shall not include any term qualifying a unit of weight or mass, measure, or count…') and 500.24 ('Nothing contained in the regulations in this part shall prohibit supplemental statements, at locations other than the principal display panel, describing in non-deceptive terms the net quantity of contents…'). Nonetheless, we are unlikely to recommend that the FTC pursue enforcement action for non-deceptive labels. Doing so could deprive consumers of valuable information in some situations."

Summary

In summary, the term "supplemental statement" which appears in FPLA, FTC and FDA regulations is not defined. Based on the history of opinions and clarifications provided by the federal agencies since adoption of FPLA, it becomes apparent that the definition is not intended to be expansive and somewhat narrow. The FDA on numerous occasions has opined that certain quantity related expressions are NOT supplemental statements and FTC on at least one occasion has similarly opined this viewpoint as well.

While it is not clear what exactly is and is not a supplemental statement, the many circumstances where the agencies have concluded that an expression is NOT a supplemental statement give some insight into allowable and non-allowable expressions. In the most recent FTC opinion suggesting (which was written without a review of the history of previous FDA and FTC recommendations) that the term supplemental statement could be broadly interpreted, FTC goes on to state that added quantity expressions provide useful information to consumers, and they recommend against enforcement actions for packages which display this information. The other opinions provided by FTC and FDA also appear to similarly recognize that the information being provided is useful to consumers.

As a result, this NCWM Best Practice Document has been developed to help ensure that any and all quantity expressions which might appear on a package are clear, non-misleading and useful.

Appendix 2
Illustrations and Discussion of Voluntarily Added Expressions

The purpose of this Appendix is to illustrate package Principal Display Panel (PDP) examples for the purposes of illustrating some of the principles discussed by this document. These examples are intended to be representative and specifically do not cover every possible permutation of possible label scenario since the number of possible scenarios is extremely large.

This appendix is comprised of diagrams focusing on a limited number of label elements. Diagrams were selected as more appropriate than photos of marketed products to avoid possible product identification and the perception of an implicit product endorsement or critique.

This appendix was developed because it is essential that manufacturers consider the cumulative effects of expression location, size, font, color, and contrast on the package in relation to other required and voluntary PDP elements and statements. Expression location, presentation, size and contrast should help the consumer to make informed value comparisons at the point of purchase and not minimize the visibility or content of other information required to appear on the PDP.

A manufacturer is responsible for ensuring an Additional Expression of Quantity (AEQ's) location, font, graphics or wording provides clear and non-misleading information that does not contradict or marginalize the information provided in the required Declaration of Net Quantity (DoNQ)

Additional Expressions of Quantity can appear on the PDP as illustrated in the following examples, which illustrate differences in color, font size, expression wording, and graphic design such as graphic features or icons. An AEQ may employ a single color and font type or may combine 2 or more colors and fonts. AEQs may express information in the same unit as in the DoNQ or other common recognizable units of legal metrology or count appropriate for the type of product and package size.

1. <u>Additional Expression of Quantity (AEQ)</u> – Additional Expressions of Quantity (AEQ) may appear in the upper 70 % or lower 30% of the Principal Display Panel (PDP). The AEQ can be located opposite the Declaration of Net Quantity (DoNQ), or adjacent to the DoNQ, provided the Declaration of Net Quantity minimum separation requirements are satisfied.



PREFERRED

This example illustrates the inclusion of an AEQ (½ Liter) near the top of the PDP which is equivalent to an element of the DoNQ. The color and contrast of the ½ Liter expression have been selected to increase the visibility of the AEQ. Both the DoNQ and AEQ are clear and non-misleading.



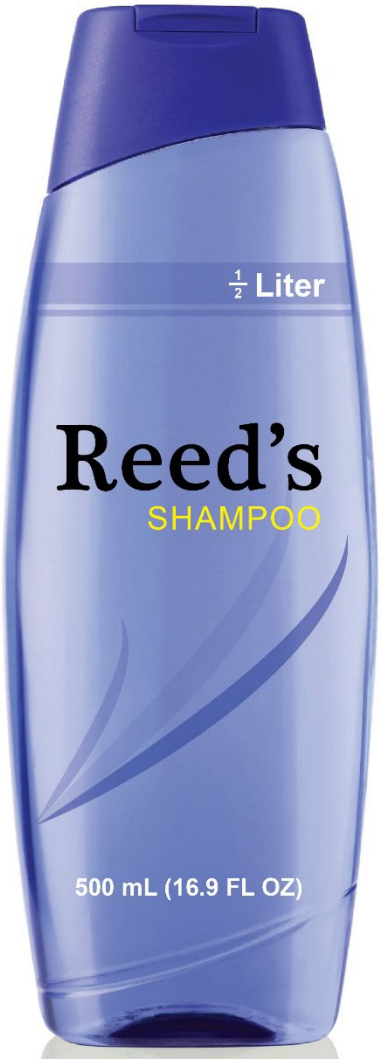
QUESTIONABLE

This example illustrates the inclusion of an AEQ (½ Liter) near the top of the PDP which is equivalent to an element of the DoNQ, however, the color and contrast of the ½ Liter expression could mitigate the visibility of the AEQ on this package.



PROBLEMATIC

This example illustrates the repetition of the DoNQ state-ment at a second location on the PDP. The DoNQ has a prescribed location on the PDP and should be provided only at that location. FTC regulations do not support inclusion of the DoNQ at a second location on the PDP. Reinforcing that there is one and only one DoNQ at a specific location on the PDP is good policy for both consumers and manufacturers.



PREFERRED

This example illustrates the inclusion of an AEQ that states ½ Liter near the top of the PDP which is an equivalent expression to 500 mL in the Declaration of Net Quantity (DoNQ).



PROBLEMATIC

This example illustrates the inclusion of the phrase "At Least ½ Liter" near the top of the PDP while the DoNQ states 500 mL. Since the DoNQ states the package contains 500 mL, the AEQ must be an equivalent statement. "At Least ½ Liter" is not an equivalent statement to 500 mL and implies the package may or may not contain more than 500 mL without any added clarification. As a result, this is viewed as problematic.



PROBLEMATIC

This example illustrates inclusion of the expression "Up to ½ Liter!". This example is problematic since "up to" does not communicate a precise and verifiable quantity to a prospective buyer of an individual package, and may actually contain less. This expression also is not consistent with the DoNQ. Expressions like "up to", "approximately" and "about" suggest a quantity range instead of a verifiable quantity. Additionally, the ½ may be hard to see as a result of its size and contrast.



PREFERRED

This example illustrates the inclusion of an AEQ (6 Doughnuts) near the top of the PDP which provides package count information in addition to the weight/mass information provided by the DoNQ. The "6" and "Doughnuts" appear with differing font, color and contrast in a manner which makes the AEQ clear.

.



PREFERRED

This example illustrates the inclusion of an AEQ (6 DOUGHNUTS) in the lower 30% of the PDP on the opposite side of the label and separate from the DoNQ which provides weight/mass information The "6" and "DOUGHNUTS" appear with the same font, color and contrast in a manner which makes the AEQ clear.



PREFERRED

This example illustrates the inclusion of an AEQ (6 Doughnuts) in the lower 30% of the PDP on the same side separate from the DoNQ. The "6" and "Doughnuts" have different font sizes and their color differs from the DoNQ, which makes the AEQ separate and distinct from the DoNQ.



PROBLEMATIC

This example illustrates the inclusion of an AEQ (6 Doughnuts) in the lower 30% of the PDP immediately adjacent to the DoNQ. In this case, the "6 Doughnuts" is not separate from the DoNQ despite having a different color and font.



PROBLEMATIC

This example illustrates the inclusion of an AEQ (6 Large Doughnuts) in the lower 30% of the PDP which provides package count information in addition to the weight/mass information provided by the DoNQ. The "6" and "Large Doughnuts" appear in differing font sizes and color from the DoNQ, but the AEQ location is almost too close to the DoNQ and the DoNQ separation requirement. The term "Large" in the AEQ is an undefined quantity term which makes the AEQ less objective Terms such as "Large" and "Jumbo" are prohibited from the DoNQ because they can exaggerate quantity, and an AEQ on the PDP should similarly not use exaggerating terms.

2. <u>Reconstituted Expression of Quantity (REQ)</u> – Reconstituted Expressions of Quantity may appear in the upper 70 % or lower 30% of the Principal Display Panel (PDP) as illustrated in the examples below. The REQ may be located opposite the Declaration of Net Quantity (DoNQ), or adjacent to the DoNQ, provided the Declaration of Net Quantity minimum separation requirements are satisfied. Where two or more REQs are present (not shown), they may appear in both the upper 70% and/or lower 30% of the PDP. It is not required for the REQ statements to be identical provided they are both accurate and non-misleading.



PREFERRED

This example illustrates the inclusion of an REQ (Makes 56 Quarts) in the upper 70% of the PDP which provides information concerning how much product the package contents can make per the package instruction. The REQ includes a pitcher related to how the product is mixed and consumed. The REQ is accurate and separate from the DoNQ.



PROBLEMATIC

This example illustrates the inclusion of an REQ (Makes about 56 Quarts) in the upper 30% of the PDP. The REQ separates itself from the rest of the label including the DoNQ, however, the term ~~but~~ "about" does not communicate a precise and verifiable quantity. Expressions like "up to", "approximately" and "about" suggest a quantity range instead of a verifiable quantity, and in this example "About 56 Quarts" is problematic because it is inexact and not verifiable, and a consumer may or may not be able to make 56 quarts of reconstituted product.



PREFERRED

This example illustrates the inclusion of an REQ (Makes 56 Quarts) in the lower 30% of the PDP on the opposite side from the DoNQ. The REQ provides information concerning how much product the package contents can make per the package instruction. The REQ includes a pitcher related to how the product is mixed and consumed. The REQ is accurate and separate from the DoNQ.



PROBLEMATIC

In this example "56 Quarts" appears with the "2.0 LB 907g" in the DoNQ. While the inference might be that this package makes 56 quarts, the actual package contents is not 56 quarts. Whether the 56 Quarts in this example is immediately adjacent to the DoNQ or separate from the DoNQ, stating 56 Quarts without "Makes" is an incorrect statement.



PREFERRED

In this example, we show the PDP and the product reconstitution instructions from the back of the package label.

This PDP with the REQ follow the principles of this Document. One added requirement for REQs are clear and verifiable reconstitution instructions which must appear someplace on the package label. These instructions provide clear and verifiable directions for reconstituting product.

Reconstituted Instructions *(from package back panel labeling)*

To Mix: Add 2 quarts of water to 1/3 cup of powder.



PROBLEMATIC

In this example, we show the PDP and the product reconstitution instructions from the back of the package label.

This PDP with the REQ follow the principles of this Document. One added requirement for REQs are clear and verifiable reconstitution instructions which must appear someplace on the package label. The instructions provided in this example are not specific, objective or verifiable.

Reconstituted Instructions *(from package back panel labeling)*

To Mix: Add water to mix to taste.

3. <u>Derived Unit I</u> ...ion (DUE's) location, font, gr... ...contradict or marginalize the in...

Derived Unit Expressions can appear in the upper 70% or lower 30% of the Principal Display Panel (PDP) as illustrated in the following examples which illustrate differences in color, font size, expression wording, and graphic design such as graphic features or icons. Icons are used commonly for this type of expression. A DUE may employ a single color and font type or may combine 2 or more colors and fonts. Where two or more DUEs are present (not shown), they may appear in both the upper 70% and/or lower 30% of the PDP. It is not required for the DUE statements to be identical provided they are both accurate and non-misleading.





This example includes the PDP and a statement from elsewhere on the package label. In this case, the PDP shows the inclusion of a DUE (20 LOADS) in the upper 70% of the PDP which provides information concerning how many derived units (LOADS) the package contents can deliver. The PDP of this package adheres to the principles for DUEs contained in this Document.

One requirement for DUEs is that there must be a derived unit definition (which is clear and verifiable) someplace else on the package labeling. See examples below.



This example illustrates the inclusion of a DUE (28 DOSES) in the lower 30% of the PDP which provides information concerning how many derived units the package contents can make per the package instruction. The DUE is accurate, verifiable and separate from the DoNQ.

PREFERRED

In this example, the derived unit is defined to be 8 fluid ounces of detergent. This is clear and verifiable.

ONE LOAD IS 1 CUP (8 FL OZ) WHICH IS THE AMOUNT OF DETERGENT TO DO A MEDIUM LOAD

PROBLEMATIC

In this example, the derived unit is not clearly defined and is not verifiable.

USE APPROXIMATELY ONE CUP OF DETERGENT FOR YOUR LAUNDRY LOAD



PROBLEMATIC

In this diagram, the derived unit expression appears with minimal separation from the DoNQ in the lower 30% of PDP. With this spacing the "20 Loads" appears to be part of the DoNQ, which is in violation of DoNQ requirements since Loads (and other Derived Units) are not units of Legal Metrology. As a result, separation of a DUE from the DoNQ must be sufficiently large to ensure that the DUE is clearly not part of the DoNQ.



PROBLEMATIC

In this diagram, the DUE statement "Makes Up to 20 Loads" is an inexact expression that does not provide accurate quantity information that consumers can rely upon and regulators can verify. Exactly how many Loads are delivered? Expressions appearing on the PDP need to provide precise and accurate values, not ranges.

4. <u>Comparative Quantity Representation (CQR)</u> – A manufacturer is responsible for ensuring a Comparative Quantity Representation (CQR's) location, font, graphics or wording provides clear and non-misleading information which does not contradict or marginalize the information provided in the required Declaration of Net Quantity (DoNQ). Because CQRs may employ the same units as those contained in the DoNQ, manufacturers should carefully consider the CQR expression content, location, graphics and fonts to minimize the likelihood that a portion of the CQR is misinterpreted to be the DoNQ.

Comparative Quantity Representations should appear in the upper 70% of the Principal Display Panel (PDP) as illustrated in the following examples which illustrate differences in color, font size, expression wording, and graphic designs. A CQR may employ a single color and font type or may combine 2 or more colors and fonts. CQR's may express information in the same unit as in the DoNQ or other common recognizable units of legal metrology or count appropriate for the type of product and package size.



QUESTIONABLE

The CQR on this package is questionable because the expression is very close to extending into the lower 30% of the PDP. Because CQRs are full statements which have numbers which can be over emphasized, the statements in their entirety need to remain outside the lower 30% of the PDP to ensure separation from the DoNQ.



PROBLEMATIC

The CQR on this package covers the entire right side of the PDP. The expression extends into the lower 30% of the PDP where the 15 LB portion of the expression appears in a larger font with a bolder color. This presentation can be misinterpreted by a consumer shopping in a retail establishment as being a 15 LB package, not the 8 LB package it really is. While CQRs can make words and numbers of differing sizes, colors, and fonts, these statements are to remain outside the lower 30% of the PDP to avoid potential confusion.



PREFERRED

The CQR on this package label provides a comparison between this package and another package which is clearly defined. Its location is outside the lower 30% in its entirety and clearly separate from the DoNQ



PROBLEMATIC

The CQR on this package is problematic because the expression is clearly within the lower 30% of the PDP. Because CQRs are full statements which have numbers which can be over emphasized, the statements in their entirety need to remain outside the lower 30% of the PDP to ensure separation from the DoNQ.

5. <u>Comparative Performance Representation (CPR)</u> – A manufacturer is responsible for ensuring a Comparative Performance Representation (CPR's) location, font, graphics or wording provides clear and non-misleading information which does not contradict or marginalize the information provided in the required Declaration of Net Quantity (DoNQ).

Comparative Performance Representations can appear in the upper 70% or lower 30% of the Principal Display Panel (PDP) as illustrated in the following examples which illustrate differences in color, font size, expression wording, and graphic design. A CPR may employ a single color and font type or may combine 2 or more colors and fonts.



PREFERRED

The CPR on this package is an expression which clearly compares the number of Loads delivered between 2 specific packages. The statement is clearly separate from the DoNQ.



PROBLEMATIC

The CPR on this package is a general statement comparing this package to powdered detergents without clear comparison to any specific package. While located separate from the DoNQ, a CPR needs to provide specific and comparisons which can be used by consumers and verified by regulators.

Resources

Federal Trade Commission Act (15 U.S.C. § 45)
https://www.ftc.gov/legal-library/browse/statutes/federal-trade-commission-act

https://www.ftc.govhttp://uscode.house.gov/view.xhtml

Fair Packaging and Labeling Act
https://www.ftc.gov/legal-library/browse/rules/fair-packaging-labeling-act-regulations-under-section-4-fair-packaging-labeling-act

NIST Handbook 130 Uniform Laws and Regulations *(includes Uniform Weights and Measures Law, Uniform Packaging and Labeling Regulation, Uniform E-Commerce Regulation)*
https://www.nist.gov/pml/owm/owm-products-and-services/publications-and-documentary-standards/handbooks

FDA Food Labeling Guide
https://www.fda.gov/foodlabelingguide

FDA Updated Nutrition Labeling Examples
https://www.fda.gov/media/99151/download

FDA Cosmetic Labeling Regulations
https://www.fda.gov/cosmetics/cosmetics-laws-regulations/regulations-related-cosmetics-title-21-code-federal-regulations-21-cfr

FDA Cosmetic Labeling Guide
https://www.fda.gov/cosmetics/cosmetics-labeling-regulations/cosmetics-labeling-guide