OWM Technical Analysis

NIST | OFFICE OF WEIGHTS AND MEASURES

Laws and Regulations (L&R) Committee Agenda Items:

Full Analysis

In preparation for the 2025 Annual Meeting of the National Council on Weights and Measures (NCWM) on July 13 – 17, 2025

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NIST Office of Weights and Measures (OWM) Analysis
Laws and Regulations (L&R)
2025 NCWM Annual Meeting Agenda

The NIST OWM Analysis is submitted to assist the Weights and Measures community as it deliberates on items before the Council. NIST OWM offers these comments and recommendations based upon information and input available as of the date of this report. This does not address information received after this date.

Language shown in a boldface print by **~~striking out~~** information is to be deleted and by **<u>underlining</u>** information is to be added. Requirements that are proposed to be nonretroactive are printed in ***boldface italics***.

Assessment of items contained within this report is as of the date of this report and does not address information received after this date."

For additional information or assistance, please contact a NIST OWM Technical Advisor:

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Subject Series List - Laws and Regulations Committee

Table 1. Reporting Structure

Note: The analysis considered information and comments submitted as of the date of this analysis and will not reflect any information presented after that date.
Source: Name and affiliation of submitter. **Submitter's Purpose and Justification:** The submitter's concise statement as to the intent or purpose of this proposal. The justification describes the national importance, background on the issue, and may contain references to supporting data or documents. The justification may be summarized by OWM. **OWM Executive Summary:** High level points that summarize the Technical Aspects of the item and recommendations pertaining to the Item Under Consideration. **Table 2. Summary of Recommendations** **Item Under Consideration** – The latest language that the Committee has moved forward as the Item membership is considering. OWM has applied the appropriate formatting according to NIST Handbooks. **NIST OWM Detailed Technical Analysis** – A detailed analysis with background information and recommendations from the Office of Weights and Measures (OWM). **Summary of Discussions and Actions** – An OWM summary of details and discussion on this Item. This includes discussion and decisions of the Standing Committee. This may also include information from sectors, trade associations, task groups, and subcommittees.
Regional Association Reporting – An OWM summarization of the Regional Association Meeting finalized reports. • Each region will be identified by their regional acronym along with the year and meeting. • The meeting within each region will be in chronological order. • This information is taken directly from the Regional Association Final report. • The Technical Advisor may reach out to the regional Chair for clarification.

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Details of All Items
(In order by Reference Key)

PAL – Uniform Packaging and Labeling Regulation

PAL-25.1. W Section 1. Application

Source: Standlee Premium Products, LLC, an Idaho limited liability company

Submitter's Purpose and Justification:

Exempt all baled commodities such as forage, hay, and straw from the provisions of this regulation.

Item under Consideration:

Amend NIST Handbook 130 Uniform Packaging and Labeling Regulation as follows:

Section 1. Application

This regulation shall apply to packages, but shall not apply to:

(a) inner wrappings not intended to be individually sold to the customer;

(b) shipping containers or wrapping used solely for the transportation of any commodities in bulk or in quantity to manufacturers, packers, or processors, or to wholesale or retail distributors, but in no event shall this exclusion apply to packages of consumer or non-consumer commodities as defined herein;
(Added 1971)

(c) auxiliary containers or outer wrappings used to deliver packages of such commodities to retail customers if such containers or wrappings bear no printed matter pertaining to any particular commodity;

(d) containers used for retail tray pack displays when the container itself is not intended to be sold (e.g., the tray that is used to display individual envelopes of seasonings, gravies, etc., and the tray itself is not intended to be sold);

(e) open carriers and transparent wrappers or carriers for containers when the wrappers or carriers do not bear any written, printed, or graphic matter obscuring the label information required by this regulation; ~~**or**~~

(f) packages intended for export to foreign countries~~.~~**; or**

(g) auxiliary containers, outer wrappings and other packaging containing baled hay or straw, or any other baled commodity used to deliver such baled hay or straw, or other baled commodities to retail customers.
(Amended 1994**,** ~~and~~ 1998 **and 202X**)

Previous Status:

2025: New Proposal

Original Justification:

The submitter contends that the industry standard and the traditional method of sales of baled forages and straw sold at retail is by the bale, and consumers are very well aware of this fact and know what they are getting. More specifically, there exists a firmly established consumer usage and trade custom with respect to the terms "bale of hay", "bale of straw" and otherwise "a bale" with respect to other baled commodities when used to express a declaration of quantity for baled hay, baled straw, and other baled commodities. With limited exception, baled products are not contained in a package and are exempt from all packaging regulations/rules per the Association of American Feed Control Officials (AAFCO) Regulation 1, paragraph C. and CFR21 Part 501. The limited exception is baled products are contained in consumer-friendly packaging to provide ease and convenience for the consumer to carry the product and to protect the bale from breaking apart, all without altering the nature or integrity of the baled product itself. Accordingly, by that established general consumer usage, trade custom and traditional declaration of "bale of hay" or "bale of straw" the consumer is provided accurate and adequate information as to the quantity of the commodity baled hay, the commodity baled straw and other baled commodities sold in consumer-friendly packaging.

The submitter further states that the Federal Trade Commission, Fair Packaging and Labeling Act (FPLA) is designed to protect consumers as outlined, Purpose of the Act: The FPLA is designed to facilitate value comparisons and to prevent unfair or deceptive packaging and labeling of many household "consumer commodities". Forage and straw are not household consumer commodities. They are animal feed and should be subject the AAFCO rules and not the NIST Handbook 130 regulations.

The cost to change the method of sale for a bale of hay will not be significant to farmers, large and small. Consumers know when they buy a bale of hay what they are getting.

The submitter included AAFCO Rules, 21 CFR 501.110, Review Provisions from Handbook 130 Interpretations and Guidelines, and FPLA excerpts are available on the NCWM website.

The submitter recommended that this be a Voting item in 2025.

NIST OWM Executive Summary

PAL-25.1. – Section 1. Application

NIST OWM Recommendation: Withdrawn

- This agenda item has been Withdrawn by the Laws and Regulations Committee during the 2025 NCWM Interim meeting.
- Section 1 Application comes directly from FPLA, and the requirements cannot be added nor deleted from this section.
- Petitioning the FTC or FDA would be an alternative solution for the submitters. There are currently eight (8) subsections within the Exemptions of the FPLA.
- The FPLA and UPLR require a packaged commodity to include the Identity, Responsibility and Net Quantity.

PAL-25.1. – Section 1. Application

- There is no definition or defined unit for a Bale of Hay. There are different types of bailers and delineations of a "bale" (meaning a bundle wrapped or bound). The "bale" can be cut into various sizes and still be considered a "bale."
- This is more reflective of a Method of Sale (MOS) item as opposed to a Package and Labeling item. Determining a Method of Sale for a bale of hay that best promotes value comparison is recommended.
- Selling by the bale does not facilitate a value comparison because of the variation in bales of hay.
- We recommend the submitter bring back the item with a clear definition of a bale, and modified language recommending a method of sale. The submitter should seek consensus from the industry trade association on the MOS.

Table 2. Summary of Recommendations
PAL-25.1. – Section 1. Application

	Status Recommendation	Note*	Comments
Submitter	Voting		
OWM	Withdrawn		
WWMA	Assigned		
NEWMA	Developing		
SWMA	Withdrawn		
CWMA	Withdrawn		
NCWM	Withdrawn		

	Number of Support Letters	Number of Opposition Letters	Comments
Industry	2		From Submitter
Manufacturers			
Retailers and Consumers			
Trade Association			

***Notes Key:**
1. Submitted modified language
2. Item not discussed
3. No meeting held
4. Not submitted on agenda
5. No recommendation or not considered

Item Under Consideration:

Amend NIST Handbook 130 Uniform Packaging and Labeling Regulation as follows:

Section 1. Application

This regulation shall apply to packages, but shall not apply to:

(a) inner wrappings not intended to be individually sold to the customer;

(b) shipping containers or wrapping used solely for the transportation of any commodities in bulk or in quantity to manufacturers, packers, or processors, or to wholesale or retail distributors, but in no event shall this exclusion apply to packages of consumer or non-consumer commodities as defined herein;
(Added 1971)

(c) auxiliary containers or outer wrappings used to deliver packages of such commodities to retail customers if such containers or wrappings bear no printed matter pertaining to any particular commodity;

(d) containers used for retail tray pack displays when the container itself is not intended to be sold (e.g., the tray that is used to display individual envelopes of seasonings, gravies, etc., and the tray itself is not intended to be sold);

(e) open carriers and transparent wrappers or carriers for containers when the wrappers or carriers do not bear any written, printed, or graphic matter obscuring the label information required by this regulation; ~~**or**~~

(f) packages intended for export to foreign countries~~.~~**; or**

(g) auxiliary containers, outer wrappings and other packaging containing baled hay or straw, or any other baled commodity used to deliver such baled hay or straw, or other baled commodities to retail customers.
(Amended 1994**,** ~~and~~ 1998 **and 202X**)

NIST OWM Detailed Technical Analysis:

This item has been marked Withdrawn from the Laws and Regulations Committee agenda during the 2025 NCWM Interim meeting. It is not fully developed and does not provide a definition for a "Bale". Additionally, it may be better suited for a Method of Sale regulation than an exemption from the Fair Packaging and Labeling Act (FPLA).

Section 1 Application comes directly from the FPLA, and the requirements cannot be added or deleted from this section. Petitioning the FTC or FDA would be an alternative solution for the submitters. The FPLA's exemptions currently have eight (8) subsections.

The FPLA and UPLR require a packaged commodity to include the Identity, Responsibility, and Net Quantity, and there is no definition or defined unit for a Bale of Hay. There are different types of bailers and delineations of a "bale" (meaning a bundle wrapped or bound); the "bale" can be cut into various sizes and still be considered a "bale." This is more reflective of a Method of Sale (MOS) item as opposed to a Package and Labeling item. Determining a Method of Sale for a bale of hay that best promotes value comparison is recommended. Selling by the bale does not facilitate a value comparison because of the variation in bales of hay.

We recommend the submitter bring back the item with a clear definition of a bale, and modified language recommending a method of sale. The submitter should seek consensus from the industry trade association on the MOS.

Summary of Discussions and Actions:

At the 2025 NCWM Interim meeting, Kurt Floren, County of Los Angeles, remarked that the word "Bale" is not defined, and no standard has been set for it. Other commodities can be baled and have certain marking requirements that require quantity statements and recommend Withdrawal of this item. Jason Flint, New Jersey, opposes an exemption on baled commodities and refers to the assertion that it conflicts with the Association of American Feed Control Officials and points out that pet treats need to have a net quantity statement. Aaron Yanker, State of Colorado, mentioned feed is priced on a national standard of price per ton, which that price is broken down into price per bale for the customer. Christen Walker Arkansas, consumers need to know the weight of the product to make informed decisions on their purchases and suggest withdrawal of the item. Matt Douglas, California, and Jim Willis, New York, agree with the prior comments and ask for withdrawal.

The Laws and Regulations Committee has withdrawn this item.

This item was introduced during the 2025 meeting cycle and has not been considered during an NCWM Interim or Annual Meeting.

Regional Association Reporting:

Western Weights and Measures Association

At the September 2024 Annual WWMA Meeting, Dusty Standlee, representing Standlee Premium Products, made a presentation on their proposal. The bales are not uniform by weight due to the nature of the product despite the consistent production process. The issue this proposal addresses is that a wrapped bale must declare a net weight, while an unwrapped bale may not declare a net weight with inconsistent enforcement from state-to-state (only some states require the declaration of net weight). He also expressed that selling bales of hay by the bale has been a common practice nationwide, and 50 million bales of hay are sold yearly.

John Fitzgerald, General Counsel for Standlee, explained that the wrapped bale was a new product the company wanted to offer to consumers using less traditional quantities. The discrepancy between the different labeling requirements must be corrected and addressed, and he believes that the handbook is the best way to do so due to most jurisdictions adopting the handbook. He mentioned that he believes that hay is already exempt in federal regulations.

Standlee representative, Patxi Larrocea, stated that the wrapped bale is a new product category. He referenced two letters of support for this item from the Idaho Hay and Forage Association and the Idaho State Department of Agriculture.

The wrapped bale of hay is unaltered from when the hay baler harvests and bales it, except that it is sliced into smaller sizes.

Matt Douglas (CA – Division of Measurement Standards (DMS)) would like to have NIST's input on the definition of a "bale of hay". He also questions the placement of this item within the Uniform Packaging and Labeling Regulation. He is concerned that exempting baled products could exempt any product that is described as baled and prefers exempting specific products rather than the process used to make the product. He also states that California opposes this proposal as it conflicts with current California statutes.

Kurt Floren (County of Los Angeles, CA) stated that the distinction between wrapped and unwrapped bales of hay is that an unwrapped bale of hay is visible to the consumer, whereas the quality of a wrapped bale cannot be determined by the consumer. The section "or any other baled commodity" should be removed or

made more specific. He also mentioned that the definition of "package" is duplicative to the definition of "package" found in the Fair Packaging and Labeling Act (FPLA) of the Code of Federal Regulations (CFR), and therefore, the NCWM may not have authority for the proposed exemption.

Ken Burt (County of San Luis Obispo, CA) stated hay can be compressed in various ways. Many companies compress hay in various ways with different processes resulting in different hay densities from one business's bale to the next. This makes value comparisons difficult. Mr. Burt also asked if a bale could be wrapped at the retail store.

Aaron Yanker (Department of Agriculture, CO) stated that the quality of a wrapped bale cannot be determined. Mr. Yanker is concerned that the proposal would create a double standard between small, baled animal feed and wholesales by the ton. He suggests defining a "bale" using a net weight with tolerances to account for the natural variations in baled product weights. He also stated that animal feed is within the scope of handbook 130, so it would make sense for this product to be as well. He suggested potentially harmonizing with AAFCO definition of animal feed as being a single ingredient product.

Loren Minnich (NIST OWM) states selling by the bale does not facilitate a value comparison because of the variation in between bales of hay.

Sheri Standlee stated that most states adopt the AAFCO rules, and that hay is mostly sold by the bale in retail stores. She also stated that 80% of their grab-and-go products are being sold wrapped. She also stated that many other products are sold wrapped without the ability to check the quality of the product. With regards to Mr. Burt's question, she stated that wrapping bales at the retail store poses safety concerns because unwrapped bales shed hay onto production and distribution center floors as well as retail locations, creating slip hazards.

Jose Arriaga (County of Orange, CA) stated that bales of hay are often sold by factors such as weight, density and/or dimension.

Mr. Fitzgerald understands the importance of value comparisons for consumers but says that the distinction between unwrapped bales not needing a net weight and wrapped baled needing a net weight is a quandary.

Mr. Minnich shared the definition of a package from the NIST handbook, which is: "Except as modified by Section 1. Application, the term "package", whether standard package or random package, means any commodity: (a) enclosed in a container or wrapped in any manner in advance of wholesale or retail sale; or (b) whose weight or measure has been determined in advance of wholesale or retail sale. An individual item or lot of any commodity on which there is marked a selling price based on an established price per unit of weight or of measure shall be considered a package or packages.". Mr. Minnich questions whether unwrapped bales of hay should be considered a package as well as wrapped bales.

Brent Ricks (Weights and Measures Bureau, MT) cautions the submitter that the proposed language will not necessarily fix the problem.

Dusty Standlee and representatives of Standlee Premium Products LLC reiterated a desire for harmonization between different jurisdictions and dealing with wrapped and unwrapped bales of animal feed. They also express willingness to amend the proposal by removing the phrase "or all other baled commodities" or otherwise making it more specific to the products in question.

The WWMA Laws & Regulation Committee sees merit in this item and recommends assigning this proposal to the Packaging and Labeling Subcommittee (PALS). In addition, based on testimony heard and

the complexity of the item, the L&R Committee feels that this issue may best be addressed in the Method of Sale section rather than an exemption to Package and Labeling requirements.

Southern Weights and Measures Association

At the October 2024 SWMA Annual Meeting - Based on comments from the floor the committee feels the item does not have merit and recommends Withdrawal. Committee recommends this item be addressed as method of sale.

Dusty Standlee, CEO of Standlee – the submitter – gave a presentation on the item and stated that this product should be exempt from packaging and labeling requirements and that it would standardize the current practices across jurisdictions for all businesses in this industry.

John Fitzgerald, General Counsel for Standlee, stated that the declaration of weight was only required on the package if it was wrapped and that the wrapping was only included to make the product distribution cleaner and easier. He went on to state that the industry standard is to sell the product by the bale and not by net weight. He also stated that the product is a bale when it is harvested and banded, then when it is cut in half it is still a bale, and when cut again it remains a bale because processing does not affect the integrity of the bale.

Kristin Walter, State of Arkansas, stated that net content declarations are required on all consumer and non-consumer commodities and that if the business did not want to use net weight, they had the option to use a volumetric measurement such as cubic feet.

Mitch Marsalis, State of Louisiana, agreed that the product should be sold by a volumetric measurement. He also stated, as a farmer, that a bale is only a bale until it begins to be processed and then it is no longer a bale.

Tim Chesser, Retired, questioned if there were any organizations in support of this item or if this was only coming from this company. He also stated that the customer must be informed of any packaged commodity in order to do a proper value comparison and therefore, all packaged products must include a declaration of quantity.

Michelle McCulley, State of Maryland, stated that it is common practice for this product to be sold as a bale directly from the field and so this change would affect more than just retail sales.

Brian Terry, State of Arkansas, echoed the comments from Mitch Marsalis and further stated that this issue should be addressed by defining a bale as a volumetric measurement in the Method of Sale Regulations.

Sheri Lauritsen, Vice President of Sales of Standlee, stated that most of what has been said were opinions and that a definition was needed. She further stated that every jurisdiction handles these issues differently and that she not only receives violations for being under weight, but also for being overweight and so labeling by net weight was not a good option. She also stated that the organization Association of American Feed Control Officials (AAFCO) exempts this product from labeling net content.

Chad Parker, State of North Carolina, customers can see and touch products until they are packaged. Once it is packaged, the consumer can no longer see or touch the product and so the declaration of net content statement is needed.

Northeastern Weights and Measures Association

At the October 2024 SWMA Annual Meeting Marc Paquette, NCWM Chairman, Vermont – Provided a summary of the presentation on this item to the western's meeting. Offered that western believes this to be a method of sale issue moving forward (not necessarily a package and labeling issue).

Walt Remmert, Pennsylvania – Offered that regardless of the item being offered for sale that package and labeling standards should apply. Agrees this is better suited as a method of sale discussion (at least to start)

Jim Willis, New York – As NEWMA Chair he spoke with the submitter prior to the meeting (Friday) and was notified they would not be attending to present. They are reviewing the feedback from the other meeting(s).

Jason Flint, New Jersey – Opposes this item as offered. Believes there should not be an exemption. Is aware that the submitter (email), is exploring labeling the item by count. The potential change by count is still a 'no, does not support' this item.

Steve Timmer, New York – Also questions the proposed method of sale. The item should be required to follow all the current rules that apply.

Walt Remmert, Pennsylvania – Against this item as proposed.

Jim Willis, New York – Against this item as proposed.

Cheryl Ayer, New Hampshire – Against this item as proposed.

Central Weights and Measures Association

At the May 2025 Annual CWMA meeting, this item was recommended as Withdrawn.

At the October 2024 CWMA Interim meeting, Alisha Clark, WI, opposes this item.

Greg VanderPlaats, MN, opposes this item. Robert Meadows, KS, opposes this item.

MOS – Uniform Regulation for the Method of Sale of Commodities

MOS-24.2. V 2.16.3.1. Tare Weights, Part (c) Allowable difference.

Source: National Propane Gas Association

Submitter's Purpose and Justification:

Resolve the discrepancy that exists between Handbook 130 and Title 49 of the Code of Federal Regulations with respect to the allowable differences between the stamped tare weight and the actual tare weight of cylinders used for compressed or liquefied gases in refillable cylinders.

The data presented in NIST Special Publication, "NIST SP 2200-01, 2022 NCWM-NIST National Survey on 20 lb LPG (Propane) Cylinders," is sufficient evidence that the tolerances imposed in Handbook 130 on the marking of tare weights for propane cylinders are not in sync with the real world. For example, the

report states that *"nearly half (44.3 %) of new cylinders and significantly less (32.0 % of used cylinders were in compliance with existing tare weight requirements,"* (in reference to the current Handbook 130 requirements). Which means, of course that the great majority of cylinders, even new cylinders, were not in compliance. The reasons for that include the following:

- As quoted from the report, "Initial assessments suggest that cylinder manufactures use a tolerance of 1 %, which is primarily based on Measurement Canada's requirement of 1 %." If a cylinder's tare weight can vary ± 1% from stamped value as manufactured, a cylinder's actual tare weight cannot be expected to be within ± 0.5 % of the marked value after the cylinder at any point in time thereafter.

- For practical reasons, some manufacturers may use a statistical method to arrive at an average tare weight based on previous measurements of a sufficiently large sample pool. Whatever variance there may be in the actual weight of the cylinder versus the marked tare weight, the fact is that over 98 % of the new cylinders weighed were in compliance with the DOT tolerances.

- The following statement from the report is very telling: "It is highly unusual and irregular to see a tolerance where a very significant majority of the packages are in compliance (in this case, 98.4 %)." The report goes on to state that 34.3 % of "used" cylinders would not be in compliance with the DOT tolerances. These two statements call attention to the fact that these grill cylinders are in constant circulation, subject to a wide variety of conditions, treatment and possible abuse by potentially many different customers, thereby underlining the need to steer clear of overburdensome and unwarranted regulation.

- Scales utilized in most retail locations where cylinders are filled are beam scales which do not have the capability of weighing cylinders to the sensitivity or number of decimal places necessary to verify the initial tare weight while a cylinder is under vacuum using Handbook 130 requirements. Additionally, there is no requirement in any national code or standard to fill cylinders by weight at the point of sale when the cylinder is transported for non-commercial use. These cylinders are not considered to be transported "in commerce" and are therefore not required to be filled by weight, thereby allowing for the determination of maximum fill level using the fixed maximum liquid level gauge. Scales are not required to be installed at these facilities.

- Even when the product is released to the atmosphere to "empty" the cylinder, there will always be some amount of liquid and vapor remaining in the cylinder, unless the cylinder has been put under vacuum. The liquid, of course, is much denser than air and the vapor in the cylinder is 1.5 times the weight of the air that was in the sample cylinders when they were weighed to establish the "average" tare weights.

- A minus tolerance of − 3 % will not result in extreme loss to the propane marketer in most cases, because the overfilling prevention device (OPD) will activate and prevent the overfilling of the cylinder in the vast majority of cases. As stated in the report, only 1.1 % of all cylinders tested exceeded the legal filling limit. Considering the time of year that this project was undertaken and in some northern states, it is very likely that some of those cylinders may have been filled volumetrically when the temperature was below 40 °F, it would not be unusual that more product was put into the cylinder because the OPD is calibrated to the maximum fill at 40 °F and the liquid density increases as the temperature gets colder.

- The price for a pound of propane as stated in the report seems high, as it would equate to $5.51 per gallon (4.24 lbs. per gallon). The Department of Energy published the average cost of propane in 2022 and it was shown to be $2.23 per gallon.

Opposing arguments may take the following form:

- "The purpose of NIST Handbook 130 is to ensure that the customer gets what he pays for and that the propane marketer doesn't lose out, either." The rebuttal to this argument from the standpoint of the customer is provided in the justification in number 18 above. From the marketer's standpoint, the fact that the vast majority of retail gallons sold in the U.S. are sold by National Propone Gas Association members and that those very members endorsed this proposal is evidence that marketers are not concerned about the small quantities of gas that may not be billed to the customer.

- "We should make DOT change their tolerances instead of NCWM changing theirs." The fact is that NCWM allowable differences are so unreasonable that 56 % of newly manufactured cylinders were not in compliance with them. That should be reason enough to realize that NCWM needs to change. In addition, once gas is put into a cylinder, there will always be a little bit of liquid remaining in the cylinder unless it is vacuum purged or opened to the atmosphere. This means that accurately measuring the tare weight of a cylinder becomes very difficult unless specific procedures are followed to ensure that the cylinder is truly "empty."

The submitter requested that this be a voting item in 2024 and a retroactive requirement, enforceable to all devices.

NIST OWM Executive Summary

MOS-24.2. – 2.16.3.1. Tare Weights, Part (c) Allowable difference

NIST OWM Recommendation: Voting

- In communications with the Department of Transportation (DOT) – PHMSA, NIST OWM discussed the proposed NIST OWM language for clarity. The DOT stated that this is accurate, correct, and concise. The language depicts the appropriate stamped or stenciled tare for determining the net contents of a cylinder based on when that cylinder was manufactured, as described in **49 CFR § 178.35**. NIST OWM is in communication with the National Propane Gas Association (NPGA) representative, Chris Wagner, Vice President of Codes, Standards, and Safety. We have discussed the language submitted in Publication 16 and the NIST OWM proposed language submitted in the Southern Weights and Measures Regional report in 2023. Jointly, we have concluded and agree that the OWM proposed language should be the language moving forward. This language is shown below.
- Accepting the language as proposed by NIST OWM will harmonize NIST Handbook 130 and the DOT regulations. As it stands, the NIST Handbook 130 Method of Sale is in conflict with **49 CFR § 178.35.**
- NIST proposed language:

  (c) **Allowable difference.** – If the stamped or stenciled tare is used to determine the net contents of the cylinder, the allowable difference between the actual tare weight and the stamped (or stenciled) tare weight, or the tare weight on a tag attached to the cylinder ~~**for a new or used cylinder, shall be within**~~:

  (1) For cylinders manufactured prior to December 28, 2022, shall be within:

  i. ½ % for tare weights of 9 kg (20 lb) or less; or

  ii. ¼ % for tare weights of more than 9 kg (20 lb).

MOS-24.2. – 2.16.3.1. Tare Weights, Part (c) Allowable difference

(2) For cylinders manufactured on or after December 28, 2022, shall be within the following limits prescribed by General requirements for specification cylinders, 49 C.F.R. § 178.35:

i. For a cylinder of 25 lb or less at the time of manufacture, a lower tolerance of (-) 3 % and an upper tolerance of (+) 1 %; or

ii. For a cylinder exceeding 25 lb at the time of manufacture, a lower tolerance of (-) 2 % and an upper tolerance of (+) 1 %.

NOTE: Failure of a cylinder tare weight to be within the required allowable difference is considered a Method of Sale violation. The cylinder shall be removed from use until the tare weight is corrected.

Table 2. Summary of Recommendations

MOS-24.2. – 2.16.3.1. Tare Weights, Part (c) Allowable difference.

	Status Recommendation	Note*	Comments
Submitter	Voting		
OWM	Voting		NIST OWM Proposed Language
WWMA	Informational		
NEWMA	Informational		
SWMA	Informational		
CWMA	Developing		
NCWM	Voting		Upgraded to Voting during the 2025 Interim NCWM meeting.

	Number of Support Letters	Number of Opposition Letters	Comments
Industry			
Manufacturers			
Retailers and Consumers			
Trade Association			

***Notes Key:**

1. Submitted modified language
2. Item not discussed
3. No meeting held
4. Not submitted on agenda
5. No recommendation or not considered

Item Under Consideration:

Amend Handbook 130 Uniform Regulation for the Method of Sale of Commodities as follows:

2.16.3.1. Tare weights.

…

(c) Allowable difference. – If the stamped or stenciled tare is used to determine the net contents of the cylinder, the allowable difference between the actual tare weight and the stamped (or stenciled) tare weight, or the tare weight on a tag attached to the cylinder for a new or used cylinder, shall be within **the following limits prescribed by 49 CFR § 178.35:**

(1) ~~**½ % for tare weights of 9 kg (20 lb) or less**~~ **For a cylinder of 25 pounds or less at the time of manufacture, a lower tolerance of 3 percent and an upper tolerance of 1 percent; or**

(2) ~~**¼ % for tare weights of more than 9 kg (20 lb)**~~ **For a cylinder exceeding 25 pounds at the time of manufacture, a lower tolerance of 2 percent and an upper tolerance of 1 percent.**

NOTE: Failure of a cylinder tare weight to be within the required allowable difference is considered a Method of Sale violation. The cylinder shall be removed from use until the tare weight is corrected.

NIST OWM Detailed Technical Analysis:

The language under consideration, provided by the National Propane Gas Association, does not reflect the difference between the two requirements for manufactured stamped or stenciled cylinder tare. One must first understand that there are two sets of tolerances for cylinders manufactured: (1) prior to December 28, 2022, and (2) the new tare tolerances for cylinders manufactured after December 28, 2022. There is also a difference in the weight range of the manufactured cylinder of tare weights for cylinders pre-December 28, 2022 (20lb cylinders) and post-December 28, 2022 (25lb cylinders). These two components are depicted in the NIST OWM suggested language submitted for membership review in the 2023 Southern Weights and Measures Regional report and are again shown below for consideration. These two distinct stamped or stenciled cylinder tolerance tare requirements are clear and concise to the NIST Handbook 130 user. They are instrumental to the Method of Sale for applying the appropriate tare weight based on the date the cylinders have been manufactured.

In communication with the National Propane Gas Association (NPGA) representative, Chris Wagner, Vice President of Codes, Standards, and Safety, we have discussed the language submitted in Publication 16 and the NIST OWM proposed language submitted in the Southern Weights and Measures Regional report in 2023. Jointly, we have concluded and agree that the OWM proposed language should be the language moving forward, as shown below.

In communications with the Department of Transportation (DOT) – PHMSA, NIST OWM discussed the NIST OWM proposed language (below) for clarity. The DOT stated that this is accurate, correct, and concise. The language depicts the stamped or stenciled tare to determine the net contents of the cylinder based on when the cylinder(s) were manufactured as described in **49 CFR § 178.35.**

Upon considering the timeframe of the item under consideration and the most recent DOT public open comment period (September 2024), NIST OWM recommends moving this item forward for voting. The DOT posted a Federal Register Notice (FRN) for open public comments that concluded in September 2024. If the DOT PHMSA decides to move forward with any changes from this FRN, a Proposed Rule would occur, allowing a comment period and then a potential Final Rule. If it is the DOT's desired route, this process would take no less than two years to formalize a resolution. States are still required to meet the Federal requirements and to ensure harmonization with the current DOT rule, NIST OWM thinks it would be prudent to implement the proposed language shown below for incorporation.

(c) Allowable difference. – If the stamped or stenciled tare is used to determine the net contents of the cylinder, the allowable difference between the actual tare weight and the stamped (or stenciled) tare weight or the tare weight on a tag attached to the cylinder ~~for a new or used cylinder, shall be within:~~

(1) For cylinders manufactured prior to December 28, 2022, shall be within:

i. 1/2 % for tare weights of 9 kg (20 lb) or less; or

ii. 1/4 % for tare weights of more than 9 kg (20 lb).

(2) For cylinders manufactured on or after December 28, 2022, shall be within the following limits prescribed by general requirements for specification cylinders, 49 C.F.R. § 178.35:

i. For a cylinder of 25 lbs or less at the time of manufacture, a lower tolerance of (-) 3 % and an upper tolerance of (+) 1 %; or

ii. For a cylinder exceeding 25 lbs at the time of manufacture, a lower tolerance of (-) 2 % and an upper tolerance of (+) 1 %.

NOTE: Failure of a cylinder tare weight to be within the required allowable difference is considered a Method of Sale violation. The cylinder shall be removed from use until the tare weight is corrected.

The DOT posted a Federal Register Notice for a Request for Information, which concluded on September 24, 2024. NIST OWM suggests continuing with the status of this item as Informational, letting the Federal process continue until the DOT makes an official response.

On June 6, 2024, the DOT PHMSA posted in a Federal Register Notice for a "Request For Information," asking for input and feedback on 5 questions. This was a direct result of the NCWM Petition that was submitted. They request comments back by September 24, 2024. (Federal Register: Hazardous Materials: Request for Feedback on Tare Weight Marking Policy for Cylinders)

At the end of March 2024, NIST OWM reached out to the Department of Transportation and the DOT is considering next steps. These steps may include reaching out to the regulated community of cylinder manufacturers, fillers, users, and other interested parties for additional information.

NCWM petitioned the Department of Transportation – PHMSA requesting they reevaluate the allowable differences and they consider existing NIST Handbook 130 tolerances and data provided within the SP 2200-01, 2022 NCWM-NIST National Survey on 20 lb LPG (Propane) Cylinders.

This proposal seeks to align NIST Handbook 130, Uniform Regulation for the Method of Sale of Commodities, Section 2.16.3.1. (c), with General Requirements for Specification Cylinders, **49 CFR § 178.35,** released on December 28, 2020, which applies to cylinders manufactured after December 28, 2022.

At the end of March 2024, NIST OWM contacted the Department of Transportation, and the DOT is considering the next steps, which may include contacting the regulated community of cylinder manufacturers, fillers, users, and other interested parties for additional information.

The new DOT general requirements regarding the accuracy of the tare weight stamped on a cylinder preempt the requirements found currently in NIST Handbook 130. OWM notes the DOT requirement only applies to cylinders manufactured AFTER December 28, 2022. The manufactured date can be verified by inspecting the collar on the cylinder to which the required date is stamped.

We concur that 2.16.3.1.(c) needs to be updated to reflect new DOT requirements, and the new language must reflect how the new DOT and Handbook 130 tolerance would apply. OWM recommends that a note be included in the language that states:

(c) **Allowable difference.** – If the stamped or stenciled tare is used to determine the net contents of the cylinder, the allowable difference between the actual tare weight and the stamped (or stenciled) tare weight, or the tare weight on a tag attached to the cylinder ~~**for a new or used cylinder, shall be within**~~:

(1) For cylinders manufactured prior to December 28, 2022 shall be within:

~~**(1)**~~ **i.** ½ % for tare weights of 9 kg (20 lb) or less; or

~~**(2)**~~ **ii.** ¼ % for tare weights of more than 9 kg (20 lb).

(2) For cylinders manufactured on or after December 28, 2022, shall be within the following limits prescribed by General requirements for specification cylinders, 49 C.F.R. § 178.35:

i. For a cylinder of 25 lbs or less at the time of manufacture, a lower tolerance of 3 % and an upper tolerance of 1 %; or

ii. For a cylinder exceeding 25 lbs at the time of manufacture, a lower tolerance of 2 % and an upper tolerance of 1 %.

NOTE: Failure of a cylinder tare weight to be within the required allowable difference is considered a Method of Sale violation. The cylinder shall be removed from use until the tare weight is corrected.

The Compressed Gas Association (CGA) is an organization of primarily cylinder manufacturers and qualifiers who petitioned the DOT in 2009, and recommended tolerances with no supporting data, which DOT adopted in 2022.

NCWM petition (dtd. January 2023) requesting DOT PHMSA reevaluate the allowable differences and that DOT take into account existing NIST Handbook 130 tolerances and data provided within the **SP2200-01, 2022 NCWM NIST National Survey on 20 lb LPG (Propane) Cylinder**s.

OWM concurs with NCWM in that the DOT tolerances are too stringent and only considers the safety aspects of testing and not potential economic harm. As documented in the NCWM – NIST National Survey, it is estimated that under the new DOT requirements, there is a potential loss of 10 million dollars to consumers and 30 million dollars to consumers. High tolerances may also affect manufacturers' ability to accurately fill net contents. During DOT rulemaking, they were unaware that HB 130 regulations existed. The proposed rule was never intended to change an existing tare weight standard, but to create one.

The survey results found that 55.7 % of 9,482 new cylinders tested were not within the HB130 tolerances of ± 0.5 % and that 68 % of the 1,535 used cylinders tested were not in compliance. Though on the surface it may appear that the ± 0.5 % may be too stringent, initial assessments suggest that cylinder manufacturers use a tolerance of 1 % which is based on Measurement Canada's requirement. This would lead to a higher failure rate.

OWM believes that DOT will provide a formal response to the NCWM petition by the end of 2023. OWM is recommending that this item remain Informational to allow the Committee time to receive and review the response from DOT.

Summary of Discussions and Actions:

At the 2025 NCWM Interim meeting, Chris Wagner, National Propane Gas Association (NPGA), recommends moving this item to vote with the language provided by the NPGA in the NEWMA 2024 Interim meeting, as shown in Pub 15. Based on the elimination of NAFTA, propane could still cross from Canada to the USA in cylinders. The DOT at that time decided to adopt the Canadian tolerance. This tolerance has been adopted, and according to Chris, the NCWM should be in harmony with DOT tolerances.

John McGuire, NIST OWM, recognizes the issues and recommends that this item remain Informational, and discussed the NIST OWM analysis. Matt Douglas, Division of Measurement Standards, agrees with the NIST position and asks to keep this Informational, as does Jim Willis, State of New York.

Chris Wagner, NPGA, provided the below language:

(c) Allowable difference. – If the stamped or stenciled tare is used to determine the net contents of the cylinder, the allowable difference between the actual tare weight and the stamped (or stenciled) tare weight, or the tare weight on a tag attached to the cylinder for a new or used cylinder, shall be ~~within the following limits prescribed by~~ in accordance with ~~49~~ CFR § 178.35.~~:~~

~~(1) ½ % for tare weights of 9 kg (20 lb) or less~~ For a cylinder of 25 pounds or less at the time of manufacture, a lower tolerance of 3 percent and an upper tolerance of 1 percent; or

~~(2) ¼ % for tare weights of more than 9 kg (20 lb)~~ For a cylinder exceeding 25 pounds at the time of manufacture, a lower tolerance of 2 percent and an upper tolerance of 1 percent.

At the 2024 NCWM Annual Meeting: On June 6, 2024, the DOT PHMSA posted in a Federal Register Notice for a "Request for Information," asking for input and feedback on 5 questions. This was a direct result of the NCWM Petition that was submitted. The DOT requested comments to be given by September 24, 2024. (Federal Register :: Hazardous Materials: Request for Feedback on Tare Weight Marking Policy for Cylinders) Chris Wagner National Propane Association stated that prior to DOT final rule this was the only regulation in the market. Chris believes the Method of Sale (MOS) should be updated to reflect the new DOT rule as this will avoid confusion amongst industry and inspectors. Kevin Schnepp (Division of Measurement Standards California), CA does not adopt the MOS, yet the DOT regulations are based on safety. Therefore, NIST Handbook 130 is based on economics and should not be changed.

During the Laws and Regulation work session the committee decided to MOS-24.2 – Section 2.16.3.1. Tare Weights, (c) Allowable difference, to remain as an Informational item.

At the 2024 NCWM Interim Meeting: Bruce Swiecicki, National Propane Gas Association, NCWM Petition in front of U.S. Department of Transportation (DOT) requesting harmonization with Handbook 130 may take years and no date as to when the DOT may act. Supports DOT tolerance be adopted and suggests retroactive status for older cylinders. John McGuire NIST OWM awaiting response from petition to DOT. NIST OWM has contacted DOT in November of 2023 and has been informed this is out of staff review and leadership is determining how to proceed. Matt Douglas DOT are safety concerns not consumer concerns and a reasonable expectation that these tolerances should be met, and tare weights be accurate.

During the Laws and Regulations work session, the committee decided to grant time for the Department of Transportation to respond to the NCWM petition. The committee assigned this item as Informational.

Regional Association Reporting:

Western Weights and Measures Association

At the October 2024 WWMA Annual Meeting, Matt Douglas (Division of Measurement Standards - CA) says this item conflicts with California state law. He wants to await the results of DOTs' survey.

Loren Minnich (NIST OWM) also is waiting for DOT's response.

Mahesh Albuquerque (Division of Oil and Public Safety – CO) states that NCWM Board of Directors also awaits response from DOT.

The WWMA L&R Committee recommends this item remains informational.

At the 2023 WWMA Annual Meeting, John McGuire (NIST OOWM) wanted to bring to the attention of the Committee that NCWM petitioned the U.S. DOT to look at the tolerances and should hold off until an answer is provided by the U.S. DOT. John McGuire anticipates the response to be sent to the NCWM when complete.

Matt Douglas (California Department of Food and Agriculture, Division of Measurement Standards) recommended withdrawal, and felt that the cylinders should be stamped with an accurate tare statement, as the U.S. DOT allowable difference of the stamped tare weight versus the actual tare weight is a safety item. Matt stated that the NCWM requirements are for consumer protection, and are within the U.S. DOT safe ranges, so there is no conflict.

Steven Harrington (Oregon) takes no position, however, asked that the Committee consider adding metric units back to the proposal.

The WWMA recommends this item be Informational.

Southern Weights and Measures Association

At the October 2024 SWMA Annual Meeting, John McGuire NIST OWM stated that NCWM is waiting on US DOT response to NCWM letter.

At the 2023 SWMA Annual Meeting, based on comments received during open hearings and the fact the National Conference on Weights and Measures sent a petition to DOT to evaluate tolerances on tare, the SWMA recommends this item be informational awaiting response from DOT.

The Committee would like to acknowledge the language recommended by OWM for 2.16.3.1.(c) and as shown below:

(c) **Allowable difference.** – If the stamped or stenciled tare is used to determine the net contents of the cylinder, the allowable difference between the actual tare weight and the stamped (or stenciled) tare weight, or the tare weight on a tag attached to the cylinder ~~**for a new or used cylinder, shall be within**~~:

(1) For cylinders manufactured prior to December 28, 2022 shall be within:

~~(1)~~i. ½ % for tare weights of 9 kg (20 lb) or less; or

~~(2)~~ii. ¼ % for tare weights of more than 9 kg (20 lb).

(2) For cylinders manufactured on or after December 28, 2022 shall be within the following limits prescribed by General requirements for specification cylinders, 49 C.F.R. § 178.35:

i. For a cylinder of 25 lbs or less at the time of manufacture, a lower tolerance of 3 % and an upper tolerance of 1 %; or

ii. For a cylinder exceeding 25 lbs at the time of manufacture, a lower tolerance of 2 % and an upper tolerance of 1 %.

NOTE: Failure of a cylinder tare weight to be within the required allowable difference is considered a Method of Sale violation. The cylinder shall be removed from use until the tare weight is corrected.

Northeastern Weights and Measures Association

At the 2025 NEWMA Annual meeting in Burlington VT, John McGuire, NIST OWM – Provided updated proposal language to L&R committee by email on 4/28/2025 this language is included below:

NIST proposed language:

(c) **Allowable difference.** – If the stamped or stenciled tare is used to determine the net contents of the cylinder, the allowable difference between the actual tare weight and the stamped (or stenciled) tare weight, or the tare weight on a tag attached to the cylinder **~~for a new or used cylinder, shall be within~~**:

(1) For cylinders manufactured prior to December 28, 2022, shall be within:
- **i. ½ % for tare weights of 9 kg (20 lb) or less; or**
- **ii. ¼ % for tare weights of more than 9 kg (20 lb).**

(2) For cylinders manufactured on or after December 28, 2022, shall be within the following limits prescribed by General requirements for specification cylinders, 49 C.F.R. § 178.35:
- **i. For a cylinder of 25 lb or less at the time of manufacture, a lower tolerance of (-) 3 % and an upper tolerance of (+) 1 %; or**
- **ii. For a cylinder exceeding 25 lb at the time of manufacture, a lower tolerance of (-) 2 % and an upper tolerance of (+) 1 %.**

NOTE: Failure of a cylinder tare weight to be within the required allowable difference is considered a Method of Sale violation. The cylinder shall be removed from use until the tare weight is corrected.

John McGuire, NIST OWM – In collaboration with Chris Wagner of the NPGA, agrees that the proposed language by NIST shall be the final language. This proposal will harmonize Handbook 130 with **49 C.F.R. § 178.35**. The only difference is the (-) and (+) signs in section 2 of the proposal.

Chris Wagner, NPGA – Is in agreement with John McGuire's (NIST OWM) proposed changes. Supports the new proposal.

Steve Timar, New York – Previously opposed. Supports the new language going forward.

At the 2024 October NEWMA Interim Meeting Chris Wagner, National Propane Gas Association – Offered a change to this item (email containing offered language change submitted with this report), see below:

(c) **Allowable difference.** – If the stamped or stenciled tare is used to determine the net contents of the cylinder, the allowable difference between the actual tare weight and the stamped (or stenciled) tare weight, or the tare weight on a tag attached to the cylinder for a new or used cylinder, shall be within the following limits prescribed by in accordance with 49 CFR § 178.35.:

(1) ½ % for tare weights of 9 kg (20 lb) or less For a cylinder of 25 pounds or less at the time of manufacture, a lower tolerance of 3 percent and an upper tolerance of 1 percent; or

(2) ¼ % for tare weights of more than 9 kg (20 lb) For a cylinder exceeding 25 pounds at the time of manufacture, a lower tolerance of 2 percent and an upper tolerance of 1 percent.

Steve Timar, New York – Against, believes the change (increase) to a 3% tolerance is a safety concern as many fillers use the safety device (Overfill Prevention Device, OPD) to determine if the cylinder is full rather than the appropriate method for filling, by weight.

Cheryl Ayer, New Hampshire – Reminds the conference that we are pending feedback from DOT, and we should take that decision into consideration before moving further on this item. Believes this item should remain informational.

Jason Flint, New Jersey – Agrees with New Hampshire's position. This item should remain informational.

Walt Remmert, Pennsylvania – Also agrees with New Hampshire's position. This item should remain informational.At the 2023 NEWMA Interim Meeting, Steven Timar (New York) is concerned that this adversely affects the existing tolerances (increase) and could be a safety issue if the tank is overfilled (relying on the blow off valve).

Jason Flint (New Jersey) agreed with New York on this issue. This item shouldn't move forward without receiving response from U.S. DOT concerning their position on the item.

Cheryl Ayer (New Hampshire) agreed with New York and New Jersey. Walter Remmert (Pennsylvania) and Lou Sakin (Holliston, Massachusetts) believe it should be Withdrawn.

At the 2024 NEWMA Annual meeting, John McGuire, NIST OWM, offered comments that at the end of March 2024, NIST OWM reached out to the Department of Transportation and the DOT is considering next steps. These steps may include reaching out to the regulated community of cylinder manufacturers, fillers, users, and other interested parties for additional information.

NEWMA L&R agrees that this item should remain Informational.

Central Weights and Measures Association

At the May 2025 Annual CWMA meeting, Bruce Swiecicki, National Propane Gas Association, NPGA – The US DOT has not taken any action yet. He recommends waiting until the DOT has released its decision.

Loren Minnich, NIST - John McGuire with NIST is working on language for cylinders that were manufactured prior to the DOT decision. NIST supports tolerances of bottles manufactured after the DOT decision to meet ½ percent and ¼ percent. There is need to address bottles manufactured before the decision.

The committee recommends Developing status.

At the 2024 (May?) CWMA Annual meeting Mr. Loren Minnich, NIST – NIST has reached out to Department of Transportation to include cylinder manufacturers for additional information. Mr. Ivan Hankins, State of Iowa – Ask if there is any way to speed this process up? Mr. Loren Minnich, NIST – Added there is no way to speed this process up.

At the October 2024 CWMA Interim Meeting, Loren Minnich, NIST, has reached out to DOT and is waiting on their input to move forward.

Daniel Walker, OH, recommends assigning a Developing status until we hear back from DOT and NCWM.

At the 2023 CWMA Interim Meeting, no comments were heard. Because of no comments, the Committee recommends this item be Informational.

MOS-25.1. V 2.21.2. Metered Sales by Volume

Source: National Propane Gas Association

Submitter's Purpose and Justification:

Modify retroactive effective date within 2.21.2. (c) of IV. Uniform Regulations B. Uniform Regulation for the Method of Sale of Commodities, for alignment with normal attrition rates on existing resale dispensers

By industry estimates the propane industry consists of roughly 10,000 dispensers that are utilizing metering systems with a maximum rated capacity equal to or less than 20 gal/min. These estimates are reflective of surveys performed by propane dispenser builders and suppliers. On average, more than 700 new dispenser units are sold per year based on industry demand. According to marketers and supplier feedback these new dispenser purchases are not for expansion of the total propane dispenser population, but part of systematic replacement of existing in-service units or replacement of aging equipment during relocation of existing assets due to reductions in sales leading to viability concerns. Based on current unit attrition the majority of existing installed units will be phased out within 10 years and replaced with new units meeting the requirements of 2.21.2 (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, 2026, shall be accomplished by use of a metering system that automatically compensates for the effects of temperature.

The estimated industry cost for the existing proposed retroactivity is estimated to be in excess of $45 million. Based on the four-year proposed phase in period this would result in an average industry impact of more than $11.4 million per year in increased costs to an industry already experiencing a decline in sales. The National Propane Gas Association fears that this short window of four years in which to retrofit existing units ahead of current attrition rates, as enacted, will result in a significant reduction in the availability of consumer propane, closure of outlets with low to moderate sales levels, consolidation of assets by marketers, and substantial per gallon price increases at remaining outlets.

Based on initial analysis of limited sales data related to time and type of sales performed the vast majority of propane sold through propane dispensers results in a favorable outcome to the consumer in most if not all states. This is a result of the majority of gallons being sold as supplemental heat fuel during colder temperatures and being dispensed while ambient and product temperatures are below 60 degrees F, contrary to what may be the perception that this is a summer fuel.

Further important to understand is that it is not ambient temperature that impacts the metering accuracy of dispensed propane gallons but the product temperature. Based on the chemical properties of propane, its ability to absorb external heat application, the low boiling point generating a normal cooling factor and container filling and product movement resulting in a substantial reduction of product temperature through product vaporization, liquid temperatures are rarely consistent with ambient conditions. When a propane dispenser pump is engaged which occurs prior to the actuating of the quick acting fill valve or propane cylinder valve the propane system immediately goes into a bypass function circulating propane back to the tank through the pre-meter bypass valve. This action has a temperature reducing effect on the liquid propane within the container and can result in rapid product cooling even beyond the normal propane properties addressed above. During the propane transfer process, the bypass assembly on the transfer piping regularly cycles contributing to consistent reductions in product temperature throughout the transfer. Even if propane product temperatures are above 60 degrees F at the start of the filling process, it is expected to have a consistent reduction of the product temperature while liquid is flowing before reaching the meter which could drop below the 60-degree F temperature level during the liquid transfer balancing the sale.

Supplemental to the potential of increased prices per gallon, a reduction in availability for consumers will result in increased travel times and fuel consumption when traveling to more regionally based propane outlets negatively impacting consumers. This could lead to a resurgence in other less clean alternative fuel sources such as kerosene or diesel, for supplemental space heating, that are not under similar temperature compensation restrictions.

We are of the opinion that a longer phase in period, as is being proposed by the National Propane Gas Association, is reasonable for the protection of consumers and propane marketers, will result in better availability of propane for consumers, and lead to improved equity for all stakeholders.

Propane is infrequently dispensed at exactly 60 Degrees F. Consumers who shop at propane dispenser outlets for the purpose of purchasing propane for personal use where temperature compensation equipment is not installed and the propane liquid temperature is not exactly 60 Degrees F have the potential to not receive a volume accurate to the sale amount according to the meter. As an example, if a consumer has an empty 20# propane cylinder filled at a non-compensated meter with a sustained propane liquid temperature of 80 degrees F at the conclusion of the filling process a consumer could be billed for 5.0 gallons of propane yet not receive 0.16 of those gallons. Conversely if a consumer container is filled and the product is less than 60 Degrees F, the propane seller is potentially experiencing a product loss to the customers benefit of receiving free propane. An example of this would be the filling of a cylinder with a sustained product temperature of 40 Degrees F would show a dispensed volume of 5.0 gallons while actually delivering 0.16 gallons more.

The submitter recommended Voting status in 2025.

NIST OWM Executive Summary

MOS-25.1. – 2.21.2. Metered Sales by Volume

NIST OWM Recommendation: Voting

- NIST OWM supports the item submitter's request to change the date from 2036 to 2034 in 2.21.2.(c), effectively providing a 10-year period to transition to systems that have automatic temperature compensation capability. In making this request, the industry cited survey data acquired through discussions with propane manufacturers and suppliers, which identified a typical attrition rate of 10 years for propane meter replacement.
- MOS 20.5, as it appeared on the NCWM L&R Agenda in 2021, clarified that all volume sales of Liquefied Propane Gas (LPG) must be temperature compensated by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in^3 at 60 °F),
- Extending this timeframe to 2034 provides the industry 10 years from the adoption of MOS 20.5, amending NIST Handbook 130 in 2024. NIST OWM supports this request as reasonable and believes the current date of 2030 may be a burden for businesses to comply with.

Table 2. Summary of Recommendations

MOS-25.1. – 2.21.2. Metered Sales by Volume

	Status Recommendation	Note*	Comments
Submitter	Voting		
OWM	Voting		
WWMA	Voting		
NEWMA	Voting		
SWMA	Voting		
CWMA	Voting		
NCWM	Voting		

	Number of Support Letters	Number of Opposition Letters	Comments
Industry			
Manufacturers			
Retailers and Consumers			
Trade Association			

***Notes Key:**

1. Submitted modified language
2. Item not discussed
3. No meeting held
4. Not submitted on agenda
5. No recommendation or not considered

Item Under Consideration:

Amend the 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, 2026, shall be accomplished by use of a metering system that automatically compensates for the effects of temperature.

(c) Effective January 1, ~~**2030**~~**2036**, all metered sales (through all capacities of metering devices, regardless of installation and service date) shall be accomplished by use of a metering system that automatically compensates for temperature.

NIST OWM Detailed Technical Analysis:

NIST OWM supports the item submitter's request to change the date from 2036 to 2034 in 2.21.2.(c), effectively providing a 10-year period to transition to systems that have automatic temperature compensation capability. In making this request, the industry cited survey data acquired through discussions with propane manufacturers and suppliers, which identified a typical attrition rate of 10 years for propane meter replacement.

MOS 20.5, as it appeared on the NCWM L&R Agenda in 2021, clarified that all volume sales of Liquefied Propane Gas (LPG) must be temperature compensated by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in^3 at 60 °F),

Extending this timeframe to 2034 provides the industry 10 years from the adoption of MOS 20.5, amending NIST Handbook 130 in 2024. NIST OWM supports this request as reasonable and believes the current date of 2030 may be a burden for businesses to comply with.

NIST OWM thinks this extension is excessive and unwarranted, as the National Laws and Regulations Committee addressed and Voted on this timeframe at the 2023 NCWM Annual meeting. This agenda item requests an additional six (6) years for the conversion of Automated temperature compensation (ATC) at 20 gpm or below, for a total of 12 years.

The original item on the NCWM L&R agenda (MOS 20.5) and currently within the 2024 NIST Handbook 130, states 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, 2026, shall be accomplished by use of a metering system that automatically compensates for the effects of temperature. And, effective January 1, 2030, all metered sales (through all capacities of metering devices, regardless of installation and service date) shall be accomplished by use of a metering system that automatically compensates for temperature.

The NCWM L&R original item allows for six (6) years to convert all metered sales (20 gpm or below) to include ATC. This new agenda item requests an additional six (6) years, which would provide for 12 years in total for ATC implementation. NIST OWM does not support this extension. There is an alternative requirement in the Method of Sale that would allow users to sell by weight if an ATC has not been installed by the 2030 deadline.

This proposal lacks the data to support the extension of an additional six (6) years.

Retroactive should be removed from the "purpose".

Summary of Discussions and Actions:

During the 2025 NCWM Interim meeting, a presentation was provided by Chris Wagner, National Propane Gas Association. The presentation provides an industry view on how the consumer would not be harmed by the six (6) year extension. Chris explained how the infrastructure is currently not in place and not all meter manufacturers have a bolt-on solution to meet automatic temperature compensation requirements. Several regulators support, and several are against the six (6) year extension. John McGuire, NIST OWM, reiterated how selling by volume and temperature compensation to sixty degrees has always been the Method of Sale for propane, regardless of whether automatic temperature compensators are in place or not. This item only wishes to extend that all meter sales of twenty gallons per minute or less, have a means of automatic temperature installed by 2036. John also provided the alternative means for the sale of propane, which is by weight. Matt Douglas, Division of Measurement Standards, California, agrees with NIST OWM, believes this extension is excessive, and the solution is to sell by weight. Matt recommended this item to be Withdrawn. Mahesh Albuquerque, Colorado, adopted the 2030 requirements and questioned mechanical versus electronic compensation with Chris Wagner. Both Alison Wilkinson, Maryland, and Jim Willis support this as a voting item. Eric Rouche, Iowa, thinks the item is ready for a Vote; however, he opposes the item. Steve Harrington, Oregon, states the item is ready for Vote and believes there are alternative solutions besides temperature compensation or the use of a scale.

Regional Association Reporting:

Western Weights and Measures Association

Matt Douglas (Division of Measurement Standards – CA) finds the extension excessive.

Steven Harrington (Department of Agriculture - OR) expressed neutrality about this item and feels this item is ready for voting.

Mahesh Albuquerque (Division of Oil and Public Safety – CO) expressed the extension is excessive and pointed out that it would conflict with the newly adopted Colorado regulations.

The WWMA L&R Committee recommends this item as voting.

Southern Weights and Measures Association

At the October 2024 SWMA Annual Meeting, based on comments from the floor, committee recommends this item be assigned to Voting status.

Alison Wilkenson from Maryland said the 2026 date would create an undue burden on industry and that the temperature compensator would not be accurate on cylinders less than 20 bs.

Michelle McCulley from Maryland said it would take 3 to 6 minutes for the temperature compensator to become accurate. McCulley also stated that it would take 3 to 5 thousand dollars for these devices to be retrofitted.

Northeastern Weights and Measures Association

At the 2025 NEWMA Annual Meeting in Burlington VT, Chris Wagner, NPGA – Supports extending the period for compliance on an issue that favors the consumer, so that devices can be removed during normal

attrition. Canada adopted a similar requirement in 1991. The NPGA is in discussion with their members about mandating "electronic" temperature compensation. The NPGA may be proposing a modification about "electronic" temperature compensation as a separate proposal in the future. The delivery through a "bolt on" mechanical temperature compensator will not react quickly enough when filling small portable cylinders.

John McGuire, NIST OWM – Is not in agreement with the NPGA on the timeframe implementation and opposes the extension to 2036. NIST feels the original extension to 2030, which was adopted and review in 2025 for meters less 20 gpm needing temperature compensation was a sufficient timeframe for compliance.

Jim Willis, New York – Supports extending the retroactivity date to 2036, and concurs with Chris Wagner and the effectiveness of the meters. New York policy – they will not be enforcing temperature compensation on meters less than 20 gpm.

Steve Timar, New York – 90% of cylinder fill meters (less than 20 gpm) are mechanical metering systems. Because the mechanical compensation will not make a difference in deliveries of less than 20 gpm, so they support the replacement of as attrition occurs.

Cheryl Ayer, New Hampshire – Agrees with New York State.

At the October 2024 Interim Meeting, Chris Wagner, National Propane Gas Association – Offered an overview of the information provided in the agenda item (justification and proposal). Affirms the request to delay the requirement for temperature compensation for mechanical devices from 2030 to 2036. Stated that he has a report detailing the potential adverse effects to the industry (cost and disruption in services). The report was requested to be submitted.

Jim Willis, New York – Supports this item, in general as fully developed. Ask that the report alluded to by Mr. Wagner be shared.

Walt Remmert, Pennsylvania – Supports the item as reasonable request. Echoes the request to share the report.

Cheryl Ayer, New Hampshire – Is also in support of this item.

Central Weights and Measures Association

At the May 2025 Annual CWMA meeting, Bruce Swiecicki, NPGA proposes to shorten the proposed date from 2036 to 2034, and recommends voting status.

Loren Minnich, NIST, supports changing date from 2036 to 2034, and recommends voting.

Ivan Hankins, Iowa, supports leaving the date as voted on as 2030 and recommends withdrawal.

Bruce Swiecicki, NPGA, reminded us about the presentation at the NCWM about temperature compensation data. Cold sales are in the favor of the consumer. The cost of implementation is too great to the seller (industry). 2034 will be a good date for natural replacement of existing meters.

Mike Harrington, Iowa, is against changing the date and recommends keeping 2030. Directors already have enforcement discretion and can work with industry for compliance and enforcement.

Doug Rathbun, Illinois, agrees with Iowa.

The Committee recommends withdrawal.

At the October 2024 CWMA Interim meeting, Angela Lochner, WI, does not support this item.

Daniel Walker, OH, recommends assigning a Voting status on this item.

MOS-25.3. W 3.3. Labeling of Machines that Dispense Packaged Products

Source: New Jersey Office of Weights and Measures

Submitter's Purpose and Justification:

Enhance consumer transparency and ensure accurate pricing visibility for all packaged commodities dispensed by vending machines.

National Importance:

Ensuring clear and accurate pricing on vending machines is critical for consumer protection and trust in the marketplace. Transparent pricing helps consumers make informed decisions and prevents deceptive practices. The Federal Trade Commission (FTC) emphasizes the importance of clear pricing to protect consumers from unfair business practices and to promote a fair marketplace (Federal Trade Commission).

Background on the Issue:

Currently, vending machines are required to display product identity and net quantity, but not pricing information. This omission can lead to consumer confusion and disputes. (Federal Trade Commission).

Supporting Data:

- Consumer Behavior Studies:
- Research from the FTC indicates that clear pricing information significantly reduces consumer complaints and disputes. (Federal Trade Commission).
- Industry Standards and Practices:
- Other retail formats and jurisdictions that mandate clear pricing have seen positive outcomes, such as increased consumer trust and reduced disputes. Aligning vending machine practices with these standards can provide similar benefits.
- Technological Feasibility:
- Modern vending machines are equipped with digital displays that can easily be updated to show accurate pricing information. This makes compliance with the proposed amendment feasible and cost-effective for operators.
- Rationale:

- Consumer Transparency: Accurate and clearly visible pricing allows consumers to make informed decisions before purchasing.

- Fair Trade Practices: Ensuring that prices are prominently displayed promotes fairness and trust between consumers and vending machine operators.

- Legal Compliance: This amendment would help align vending machine practices with broader consumer protection laws, which often mandate clear pricing information.

Possible Opposing Arguments:

- Increased Operational Costs

- Updating machines to display accurate pricing and conditions of sale can be costly, particularly for small businesses.

- Technological Limitations

- Older vending machines may not have the capability to display the required information, making upgrades necessary and potentially expensive.

- Information Overload

- Adding more information to vending machines could overwhelm consumers, making it harder for them to quickly find what they need.

- Logistical Challenges

- Ensuring that pricing information is always up-to-date can be difficult, especially for operators managing many machines in different locations.

The submitter recommended Developing status for 2025.

NIST OWM Executive Summary

MOS-25.3. – 3.3. Labeling of Machines that Dispense Packaged Products
NIST OWM Recommendation: Withdrawn • This agenda item has been Withdrawn by the Laws and Regulations Committee during the 2025 NCWM Interim meeting. • This agenda item requires item pricing on a commodity which would set a new precedent as no other section requires item pricing other than random weight. • This is a matter of individual state laws to require item pricing. • If this item moves forward and a missing price is considered a violation, it would be a Method of Sale violation and not a pricing error. • If all commodities within the dispensing machine are the same price, is it acceptable to only post one price, or does each item require its own pricing?

MOS-25.3. – 3.3. Labeling of Machines that Dispense Packaged Products

- In the item under consideration, the section number should be 3.3, not 3.1.

  3.1 **(3.3) Labeling of Machines that Dispense Packaged Commodities.** – All vending machines dispensing packaged commodities shall indicate:

Table 2. Summary of Recommendations
MOS-25.3. – 3.3. Labeling of Machines that Dispense Packaged Products

	Status Recommendation	Note*	Comments
Submitter	Voting		
OWM	Withdrawn		
WWMA	Developing		
NEWMA	Developing		
SWMA	Withdrawn		
CWMA	Information		
NCWM	Withdrawn		NCWM L&R Committee Withdrew this item at its Interim meeting.

	Number of Support Letters	Number of Opposition Letters	Comments
Industry			
Manufacturers			
Retailers and Consumers			
Trade Association			

***Notes Key:**

1. Submitted modified language
2. Item not discussed
3. No meeting held
4. Not submitted on agenda
5. No recommendation or not considered

Item Under Consideration:

Amend the Uniform Regulation for the Method of Sale of Commodities as follows:

3.1. Labeling of Machines that Dispense Packaged Commodities. – All vending machines dispensing packaged commodities shall indicate:

(a) product identity;

(b) net quantity; and

(c) the party responsible for the vending machine

Examples:

"For service or refunds contact: XYZ Cola Company Rockville, MD 20800" "Telephone: (301) 555-1000," or "See attendant inside for refunds."

(Amended 1995)

(d) the requirements for product identity and net quantity can be met either by display of the package or by information posted on the outside of the machine.

(Added 1972)

(e) **prominently display accurate pricing of all commodities, clearly visible, including conditions of Sale.**

(Added 20XX)

NIST OWM Detailed Technical Analysis:

During the 2025 NCWM Interim meeting, the NCWM Laws and Regulations committee decided to withdraw this item from the agenda. The committee did not find merit in the item and believes it can be handled by each State.

This agenda item requires item pricing on a commodity, which would set a new precedent as no other section requires item pricing other than random weight. This is a matter of individual state laws requiring item pricing. If this item moves forward and a missing price is considered a violation, it would be a Method of Sale violation and not a pricing error.

- In the item under consideration, the section number should be 3.3, not 3.1.

  3.1 **(3.3) Labeling of Machines that Dispense Packaged Commodities.** – All vending machines dispensing packaged commodities shall indicate:

Summary of Discussions and Actions:

During the 2025 NCWM Interim meeting, the submitter from New Jersey articulated that many consumer complaints are being received regarding item pricing, wrong pricing, and confusing signs. Matt Curran, Florida, opposes as written, as it creates a conundrum. Many states have voluntary pricing, and this would be a conflict; Matt supports the withdrawal of the item. Aaron Yanker, Colorado, echoes Florida's comments on voluntary pricing and recommends withdrawal due to conflicting laws. Kurt Floren, County of Los Angeles, is not opposed to the premise, and it would be good for consumers; however, it conflicts with state laws. Kurt questions enforcement, logistics, and funding as additional thoughts for consideration in this item. Matt Douglas supports the clarity and transparency in the transaction yet cannot support the item and recommends withdrawal. John McGuire, NIST OWM, recommends withdrawal of the item and concurs with Florida and California. Dick Suiter, Richard Suiter Consulting states the enforcement is covered in NIST Handbook 130 Weights and Measures Laws, Section 11 Powers of the Director.

Regional Association Reporting:

Western Weights and Measures Association

At the September 2024 WWMA Annual Meeting, Matt Douglas (Division of Measurement Standards – CA) expressed general support for this item and suggested the following two editorial changes on L&R-104 line 13:

(1) The word "Sale" is currently written with an uppercase "S" and should be lowercase;

(2) Insert the word “any” before the word “conditions”.

Kurt Floren (County of Los Angeles – CA) expressed the concern that nothing else in the handbook requires posting of pricing. He mentioned that this is a matter of individual state law. For example, California does not require the posting of pricing. He is concerned that this proposal would require his jurisdiction to inspect tens of thousands of vending machines in places that inspectors currently do not visit (e.g., airports, train stations, and apartment complexes) without supporting revenue. He also expressed the concern that this proposal could open the door to far-reaching effects beyond vending machines, such as farm stands and swap meets.

Austin Shepherd (County of San Diego – CA) mentioned that the difference between vending machines and other retail venues is that with vending machines, there is no person that can be asked for the price. At a vending machine, if the price is not posted, the consumer must buy the item to determine the price. In addition, he states that this distinction has a parallel to handbook 44, which discusses unattended devices and includes specific requirements because there is no human oversight.

Aaron Yanker (Department of Agriculture – CO) mentioned that Colorado does not require the posting of pricing. He also questions who would be responsible for the posting and accuracy of prices and subject to enforcement (vending machine service company, the owner of the property the vending machine is installed at, or the entity that is leasing the vending machine).

Kevin Schnepp (Division of Measurement Standards – CA) echoes Austin Shepherd’s statement.

The WWMA L&R Committee initially recommended a voting status, but received additional testimony during the voting session:

Aaron Yanker (Division of Weights and Measures - CO) proposed adjusting the WWMA L&R Committee’s recommendation from Voting Statue to Developing Status as verifying “accurate” pricing is nearly impossible. The language “accurate pricing” may be simple but must be carefully looked into. He’s not questioning the intent of this item, but the verification of “accurate” pricing poses problems.

Kurt Floren (County of Los Angeles – CA) reiterated that he is generally opposing this item but supports Mr. Yankers recommendation.

Kevin Schnepp (Division of Measurement Standards – CA) also supports changing this item to Developing Status.

In light of this additional testimony, the WWMA Laws and Regulations Committee recommends this item as Developing.

Southern Weights and Measures Association

At the October 2024 SWMA Annual Meeting**,** Matt Curran state of Florida questioned the necessity of this item and said the conditions of sale were vague and recommended not moving this item forward.

Based on what the committee heard from the floor, committee recommends Withdrawal of this item.

Northeastern Weights and Measures Association

At the 2025 NEWMA Annual Meeting in Burlington VT, no comments were heard.

At the October 2024 NEWMA Interim Meeting, Jason Flint, New Jersey – Provided an overview of the submission (submitter from New Jersey). Provided background on the types of issues this item could prevent/resolve including transparency of ownership, product identification, pricing, and product marking. Request this item be considered as a Voting status.

Steve Timar, New York – Agrees there are issues with vending machines on a variety of levels including conditions of sale, refund policy, and ownership. Asked if the submitter was open to additional modifications/changes. Noted that the section numbering isn't consistent (should change the 3.1 to 3.3).

Cheryl Ayer, New Hampshire – Supports the concept of this item and has dealt with similar complaints related to vending machines.

Walt Remmert, Pennsylvania – Supports this item, but believes it is not fully developed.

Central Weights and Measures Association

At the May 2025 CWMA Annual meeting, no comments were heard with a recommendation of Withdrawn by the L&R committee.

At the October 2024 CWMA Interim meeting, no comments were received.

Editorial correction on the submitter's name. It should be the New Jersey Office of Weights and Measures.

FLR – Uniform Fuels and Automotive Lubricants Regulation

FLR-25.2. V Section 7. Test Methods and Reproducibility Limits

Source: R Jennings Consulting

Submitter's Purpose and Justification:

The Uniform Engine Fuel and Automotive Lubricants Regulation has an inaccuracy that must be corrected. Section 7.1.1. lists properties from a previous version of Premium Diesel requirements as detailed in Section 2.2.1. This proposal is to correct the error.

Over the years, the National Conference on Weights and Measures (NCWM) has established and sanctioned multiple standards for Premium Diesel, which are detailed in the NIST Handbook 130, Uniform Engine Fuels and Automotive Lubricants Regulation. Each iteration has been developed by the Premium Diesel Focus Group, with backing from the Fuel and Lubricants Subcommittee (FALS) and the NCWM. The requirements for classifying fuel as Premium Diesel have been refined over time to align with advancements in engine technology, user demands, and the availability of testing methodologies, with technical contributions from original equipment manufacturers (OEMs), fuel producers, and regulatory bodies. Nevertheless, at some point when updates to the Premium Diesel standards were made, there was no updates in Section 7, Test Methods and Reproducibility Limits, needed to reflect the modifications being made to 2.2.1. Premium Diesel Fuel, including the latest version ratified in 2019. The current proposal aims to revise Section 7 to ensure it accurately corresponds with the stipulations outlined in

2.2.1. Premium Diesel Fuel as specified in the Uniform Engine Fuels and Automotive Lubricants Regulation. Concurrently, the proposal intends to enhance the regulation by removing superfluous language (specifically eliminating 7.1.1. entirely), adjusting 7.1. to account for the removal of 7.1.1., and modifying the reference in 7.2.2. Reproducibility – which is relevant only to an earlier version of the Premium Diesel standard – to align with the current Section 2.2.1. Premium Diesel Fuel.

No opposing arguments are expected as it is evident that Section 7. does not align with the current premium diesel standards and should be corrected as soon as possible. During discussions, editorial recommendations regarding the proposal may arise, and any modifications will be submitted at the Interim Meeting. Furthermore, following the WWMA and SWMA 2024 Annual meetings, it is the intent to convene a virtual meeting with the entire FALS prior to the 2025 Interim Meeting to present the item to the full subcommittee.

The submitter recommends Voting status in 2025.

NIST OWM Executive Summary

FLR-25.2. – Section 7. Test Methods and Reproducibility Limits

NIST OWM Recommendation: Voting

- NIST OWM believes that with the suggested editorial formatting, this is fully developed and ready for Voting.
- NIST OWM concurs with the submitter as this corrects language as it pertains to Premium Diesel in Section 7, as the properties are stated in the Uniform Engine Fuels and Automotive Lubricants Regulation Section 2.2.1.
- The new language "**or as otherwise specified in these regulations**" should be in bold and should reflect (Amended 2008 and 20XX) until such time it is adopted.

Table 2. Summary of Recommendations
FLR-25.2. – Section 7. Test Methods and Reproducibility Limits

	Status Recommendation	Note*	Comments
Submitter	Voting		
OWM	Voting		
WWMA	Voting		
NEWMA	Voting		
SWMA	Voting		
CWMA	Developing		
NCWM	Voting		

	Number of Support Letters	Number of Opposition Letters	Comments
Industry			
Manufacturers			
Retailers and Consumers			
Trade Association			

***Notes Key:**

1. Submitted modified language
2. Item not discussed
3. No meeting held
4. Not submitted on agenda
5. No recommendation or not considered

Item Under Consideration:

Amend Handbook 130 Uniform Fuels and Automotive Lubricants Regulation as follows:

Section 7. Test Methods and Reproducibility Limits

7.1. ASTM Standard Test Methods. – ASTM Standard Test Methods referenced for use within the applicable Standard Specification or as otherwise specified in these regulations shall be used to determine the specification values for enforcement purposes.

~~**7.1.1. Premium Diesel.** The following test methods shall be used to determine compliance with the premium diesel parameters:~~

~~**(a) Cetane Number. The latest version of ASTM D613, "Standard Test Method for Cetane Number of Diesel Fuel Oil";**~~

~~**(b) Low Temperature Operability. The latest version of ASTM D4539, "Standard Test Method for Filterability of Diesel Fuels by Low Temperature Flow Test (LTFT)" or ASTM D2500, "Standard Test Method for Cloud Point of Petroleum Products" (according to marketing claim);**~~

~~**(c) Thermal Stability. The latest version of ASTM D6468, "Standard Test Method for High Temperature Stability of Middle Distillate Fuels" (180 min, 150 °C); and**~~

~~**(d) Lubricity. The latest version of ASTM D6079, "Standard Test Method for Evaluating Lubricity of Diesel Fuels by the High Frequency Reciprocating Rig (HFRR)."**~~

~~**(Amended 2003)**~~

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 20~~**08**~~**XX**)

NIST OWM Detailed Technical Analysis:

NIST OWM believes that with the suggested editorial formatting, this is fully developed and ready for Voting.

NIST OWM concurs with the submitter as this corrects language as it pertains to Premium Diesel in Section 7 as the properties are stated in the Uniform Engine Fuels and Automotive Lubricants Regulation Section 2.2.1.

The new language in 7.1, "**or as otherwise specified in these regulations,**" should be in bold and should reflect (Amended 20XX). Section 7.2.2 should say (Amended 2008 and 20XX) until it is adopted.

Summary of Discussions and Actions

During the 2025 NCWM Interim meeting, Vanessa Benchea, FALS Chair, supported the item and recommended Voting. Matt Douglas, Division of Measurement Standards, also agreed and supported the item for Voting.

This item was introduced during the 2025 meeting cycle and has not been considered during an NCWM Interim or Annual Meeting.

Regional Association Reporting:

Western Weights and Measures Association

At the September 2024 WWMA Annual Meeting, Randy Jennings Consulting (representing Clean Fuels Alliance) stated that this proposal harmonizes language that should have been addressed during the previous revisions of the Premium Diesel Fuel sections. He provided detailed written testimony that is published on the WWMA website.

Steven Harrington (Department of Agriculture – OR) and Matt Douglas (Division of Measurement Standards – CA) and Bill Striejewske (Department of Agriculture – NV) all stand in support of this item.

The WWMA L&R Committee recommends this item as voting.

Southern Weights and Measures Association

At the October 2024 SWMA Annual Meeting**,** based on the comment below, the committee recommends Voting status.

Randy Jennings R Jennings Consulting, Clean Fuels Alliance America:

As the submitter of L&R Item FLR-25.2, I am writing to ask your consideration and recommendation to move this item forward to a vote at the 2025 NCWM Annual Meeting. I believe that the justification as presented in the L&R Interim Agenda provides a good background summary on the past progression of the Premium Diesel standards in the Uniform Engine Fuels and Automotive Lubricants Regulation as well as a clear proposal for what is needed to correct the historical language that still exists in Section 7. in order to align with the current Premium Diesel standards in 2.2.1. However, I would like to offer some additional points for the Committee:

- The recommendation to remove all the text in 7.1.1. and amend 7.1. by adding "or as otherwise specified in this regulations" is an effort to streamline the language by not restating all the properties that are clearly detailed in 2.2.1. The proposal achieves the intent of noting that the test methods

referenced, ASTM or other recognized test methods, are meant to be followed to determine the specification limit values. The language, as proposed, also provides the flexibility to apply to any future limits that are established for any other products in this uniform regulation.

- 7.1.1. was originally added because NCWM is the "owner" of the Premium Diesel Specification. ASTM does not have a standard for Premium Diesel. The phrase in 7.1. "within the applicable Standard Specification" implied that only the methods in a "Standard Specification" were applicable, so 7.1.1. was added for Premium Diesel. In hindsight, it would have been better at the time to simply use the language that is now being proposed.
- The amendments suggested for 7.2.2. by removing the phrase "Section 2.2.1. Premium Diesel Fuel and" is appropriate because we no longer have any exceptions on reproducibility limits in the Premium Diesel section. This is a lingering artifact from a time when there were more stringent requirements for Premium Diesel Lubricity due to what was agreed to be a test method Reproducibility Limit that was simply too large to fully recognize. The method for Lubricity has since improved and the current Reproducibility is sufficient (and continues to be investigated at ASTM for more improvement) without any exception in this rule.

Northeastern Weights and Measures Association

At the 2025 NEWMA Annual Meeting in Burlington, VT, no comments were heard.

At the October 2024 NEWMA Interim Meeting, Jim Willis, New York – Clarified the difference between repeatability and reproducibility to the group.

No other comments were heard.

Central Weights and Measures Association

At the May 2025 CWMA Annual meeting, Scott Fenwick, Clean Fuels Alliance America (CFAA), supported this item and recommended voting.

The Committee recommends voting status.

At the October 2024 CWMA Interim Meeting, no comments were received.

OTH – Other Items

OTH-24.1. A X. Uniform Shipping Law

Source: New Hampshire Weights and Measures

Submitter's Purpose and 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.

NIST OWM Executive Summary

OTH-24.1. – X. Uniform Shipping Law

NIST OWM Recommendation: Assigned

- NIST OWM supports the task group and looks forward to their work. An updated proposal prior to the 2025 NCMW Interim meeting has been posted on the NCWM supporting documents page. This item was revised after the regionals met, and too many substantive changes have occurred. Do to strong support from the Regionals and for due process, we recommend this item remain assigned. The following language needs to be removed from Section 10. Prohibited Acts subsection 4 *Removed (5) language which mimicked 10 (a).*
- NIST OWM believes the committee should work with the National Motor Freight Transportation Association (NMFTA) to fully vet the proposed changes, as it will affect laws in every state, prior to adopting this into NIST Handbook 130.

Table 2. Summary of Recommendations
OTH-24.1. – X. Uniform Shipping Law

	Status Recommendation	Note*	Comments
Submitter	Voting		Supplied a Full Report on the Uniform Shipment Law Proposal – See Supporting Documents
OWM	Assigned		
WWMA	Assigned		
NEWMA	Voting		
SWMA	Assigned		
CWMA	Assigned		
NCWM	Assigned		

	Number of Support Letters	Number of Opposition Letters	Comments
Industry	1		
Manufacturers			
Retailers and Consumers	1		
Trade Association	1		

***Notes Key:**

1. Submitted modified language
2. Item not discussed
3. No meeting held
4. Not submitted on agenda
5. No recommendation or not considered

Item Under Consideration:

(NIST OWM has applied the appropriate formatting according to NIST Handbooks)

X. Uniform Shipment Law

Section 1. Purpose

To ensure transparent, equitable, and accountable shipment practices concerning the weight, measure, and freight classification of shipped goods.

Section 2. Scope

This Act:

(a) establishes an enforcement program;

(b) empowers the state to promulgate regulations as needed to carry out the provisions of the Act;

(c) provides for civil and criminal penalties.

Section 3. Definitions

As used in this Act:

3.X. Bill of Lading (BOL) / Waybill. – A legal instrument used in the transportation and shipment industries which lists the goods being shipped and the terms under which they will be delivered.

3.X. Carrier. – The business that transports an amount of goods.

3.X. Carrier Inspection Certificate. – A document used to signify that shipped goods have been inspected pertaining to, but not limited to, classification, density, weight, or measure.

3.X. Freight Class. – A system that groups freight into categories based on four factors: density, handling, stowability, and liability.

3.X. Goods. – All things which are movable and can be transported.

3.X. Handling Unit. – A single item or group of items that are packaged together and handled as a single unit throughout the shipping process. Handling units refer to packages or containers. These units are designed to facilitate the efficient and safe transportation, storage, and management of goods. They can vary in size and form.

3.X. Measuring System. – A set of devices and affiliated software used to measure and record the quantity, weight, volume, or size of goods. This includes all parts of the system, as well as where recorded representations are determined, and shall be approved for use by the state enforcement official in accordance with accepted standards.

3.X. National Motor Freight Classification (NMFC) Code. – A numeric code used in the U.S. freight industry to classify goods for shipping.

3.X. Progressive Number (Pro / Tracking Number). – A unique numeric identifier issued by a carrier for identification and tracking of a shipper's specific order.

3.X. Quote. – A competitively solicited offer to furnish supplies or services by a method of procurement that is less formalized than a bid or a proposal.

3.X. Shipment. – A quantity of goods shipped with a carrier.

3.X. Shipper. – Individuals or businesses that send or request goods using a carrier.

3.X. Terminal or Service Center. – A facility designated for managing and coordinating the movement of trucks and goods, and may facilitate the assessment of goods for weight, measure, and freight classification.

3.X. Third-Party Logistics (3PL) Provider / Shipping Broker / Freight Forwarder. – An intermediary between the shipper and the carrier who coordinates and facilitates the transportation of goods and may include the arrangement of the import and export of cargo.

3.X. Unique Identifier. – A distinct code or number assigned to an individual, entity, document, or item that differentiates it from all others in a system.

3.X. Director. – The _____ of the Department of _____.

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;**
  - **(1) adherence to the provided written quote from either the carrier or 3PL is required, contingent upon the shipper supplying accurate and complete documentation pertaining to the shipment;**
  - **(2) the weighing, measuring, and freight class accuracies that must be followed;**
  - **(3) the required information that shall be submitted by both the carrier and 3PL to the shipper, if a correction is applied; and**
  - **(4) the period of recordkeeping in accordance with Title 49 Subtitle B Chapter III Subchapter B Part 379 Appendix A;**

Section 5. Weighing and Measuring Practices and Equipment Used

All entities, including but not limited to, shippers, 3PL's, or carriers, shall use weighing and measuring practices and equipment:

- **(a) in accordance with the requirements of the latest edition of NIST Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices"; and**

(b) that have been examined, tested, and approved for use by either a weights and measures official or authorized service provider. In the absence of an applicable NTEP program for said device, it shall be used in accordance with the manufacturer's approved application.

Section 6. Weighing Device Used

All entities, including but not limited to shippers, 3PLs, or carriers, shall use an NTEP-approved weighing device. In the absence of an applicable NTEP program for said device, it shall be used in accordance with the manufacturer's approved application.

Section 7. Measuring Device Used

All entities, including but not limited to shippers, 3PLs, or carriers, shall use an NTEP-approved measuring device. In the absence of an applicable NTEP program for said device, it shall be used in accordance with the manufacturer's approved application.

Section 8. Carrier 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(s) who conduct(s) the inspection;

(2) date and time of the inspection;

(3) identifying information for the issuing terminal to include physical address and contact information;

(4) unique identifier of the weighing or measuring device used to conduct the inspection;

(5) indicated reweigh or remeasure value from the weighing device or measuring device for each handling unit;

(6) indicated NMFC code and commodity description related to freight class for each handling unit or shipment correlating to a change in weight, measure, or density;

(7) identifying information for both the Pro Number and BOL, if applicable; and

(8) name and address of the shipper from the point of origin.

Section 9. Copies of Carrier Inspection Certificates

The carrier and 3PL shall keep and preserve for the period of two years, a legible copy of each inspection certificate issued to the shipper. The certificates, as required in Section 8. Carrier Inspection Certificate - Required Entries, shall be available for inspection within 48 hours by a weights and measures official during normal business hours.

Section 10. Prohibited Acts

It shall be unlawful if any entity:

(a) violates any provisions of this Act or any regulation promulgated under this Act, with intent to defraud; or

(b) knowingly or with intent to defraud -

(1) provides a false commodity description, freight class, NMFC code, density, weight, or measurement either orally or written;

(2) satisfies fewer than all requirements of this Act as stated in Sections 5, 6, 7, 8, and 9;

(3) hinders or obstructs in any way the Director or their authorized agent in the performance of the Director's official duties under this Act;

(4) uses or have in their possession a measuring system or any of its components that have been designed, modified, or used to facilitate fraud, or that has not been approved for commercial use by a weights and measures agency and/or official, or other authorized regulatory authority having jurisdiction over the measuring system.

Removed (5) language which mimicked 10 (a).

Section 11. Civil Penalties

11.1. Assessment of Penalties. – Any entity who by themselves or by their servant or agent commits any of the acts enumerated in Section 10. Prohibited Acts may be assessed by the _____ a civil penalty of:

(a) not less than $ nor more than $ for a first violation,

(b) not less than $ nor more than $ for a second violation within from the date of the first violation, and

(c) not less than $ nor more than $ for a third violation within from the date of the first violation.

11.2. Administrative Hearing. – Any 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.

11.3. Collection of Penalties. – If the respondent has exhausted their administrative appeals and the civil penalty has been upheld, they 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 12. Criminal Penalties

12.1. Misdemeanor. – Any entity who by themselves or by their servant or agent commits any of the acts enumerated in Section 10. 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.

12.2. Felony. – Any entity who by themselves or their servant or agent who intentionally commits any of the acts enumerated in Section 10. 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 13. 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 14. 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 15. 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 16. 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 there under, the existing law shall remain in full force and effect.

Section 17. Citation

This Act may be cited as the "Shipment Act of _____."

Section 18. Effective Date

This Act shall become effective on _____.

NIST OWM Detailed Technical Analysis:

The Uniform Shipping Law Task Group submitted updated language to the committee during the 2025 NCWM interim meeting for consideration. This language updates the item under consideration and will take the National Motor Freight Transportation Association (NMFTA) comments under advisement. This new language addresses the updates and concerns from the previous iteration, yet NIST OWM needs to further hear more dialogue on the concerns raised during the open hearings at the 2025 NCWM Interim meeting. These concerns are: if this is a model law, how will each state adopt a unified language as opposed to the State's legislatures modifying it to their own language? Additionally, this item is presented as a law; has the Task Group considered it to be a model regulation? Prior to this item becoming law, all federal

entities that currently have a vested interest need to be heard by the committee and their comments vetted so that no federal preemption occurs.

This proposal is an excellent effort that aims to address a significant issue present within the shipping industry for quite some time. A uniform shipment law provides a model approach for granting authority to regulators to ensure equitable shipment practices; common carriers and consumers both stand to benefit from fairer and transparent transactions. The Task Group (TG) comprises members from a wide range of interests, including regulators and industry providers. The representatives recognize the need that this proposal addresses and support the development of the Uniform Shipment Laws.

However, many potentially divergent perspectives have not yet participated in or become aware of the proposal. The TG's work began only six months ago, and the proposal has progressed quickly. Given its scope and novelty, feedback from a wider range of stakeholders might be warranted; for some, this proposal could contain significant changes.

NIST OWM supports the task group and looks forward to their work. A new proposal has been posted on the NCWM supporting documents page. This item was revised after the regionals met, and too many substantive changes have occurred.

The following recommendations are based on the new supporting document located on the NCWM website submitted on 10-8-24.

In Section 1. Purpose the sentence should read: To ensure transparent, equitable, and accountable shipment practices. This sentence should identify what shipping practices are, weighing, measuring, and such.

Section 7 Measuring Device Used - All entities, including but not limited to, shippers, 3PL's, or carriers, shall use a **NTEP approved** measuring device**. If there is no NTEP program for said device it shall be used** in accordance with the manufacturer's approved application of said device.

In Section 8(b)(3) the use of the word "terminal" with no definition.

Section 9 Copies of Carrier Inspection Certificates - The carrier and 3PL shall keep and preserve for the period specified in the regulations, a legible copy of each inspection certificate issued to the shipper. The certificates shall be available for inspection within 48 hours by a weights and measures official during normal office hours. OWM would like to see the regulation inserted or hyperlinked after the word "regulations."

Section 10 Prohibited Acts (b)(4) states… "or that has not been approved by a weights and measures official having jurisdiction over the measuring system" NIST OWM questions the use/ intent of the word "approved". Is this allowing the use? Tested and approved?

NIST OWM has applied the appropriate formatting according to NIST Handbooks.

A request from the L&R Committee to form a Task Group has been asked for and granted by the Chair of the NCWM. The Uniform Shipping Law Task Group has been formed.

NIST OWM believes this item has merit and recommends the NCWM L&R Committee form an NCWM Task Group. The goals of the Task Group should be to identify any other regulations that this proposal might infringe upon, for example, the Federal Motor Carrier regulations of the Department of Transportation. We strongly encourage the Task Group to do an in-depth review of interstate commerce.

Summary of Discussions and Actions:

At the 2025 NCWM Interim meeting, Jeff Cooper and Claire Shapiro from the National Motor Freight Transportation Association (NMFTA) shared points of interest. It was stated that LTL shipments are provided a shipping class whereby loads may not be marked yet; they need to be inspected and assigned, even if the shipper is not paying, and the consignee is charged. They also stipulated that Carriers have dispute resolution policies for any adjustments, and the NMFTA is looking to join the Task Group. Cheryl Ayer, New Hampshire, supports the item and points out that Bills of Lading (BOLs) are not being completed, which is a requirement; shippers are picking up inaccurate or incomplete BOLs, and the discussed dispute resolution procedures are not functional. Aaron Yanker, Colorado, asks if the Task group has taken into consideration all shipments or just LTLs. Colorado supports this item. Matthew Curran, FL, is currently neutral pending the outcome of the task group's work and recommends an "Assigned" status, but asks if the task group has included in their deliberations how any such regulations may create a gap between what the USPS does and what this regulation would require of the affected private sector companies? Also, since this is a proposed model law, which would not be adopted in several states, has this discontinuity been considered in the task group's deliberations? Further, since it is a proposed model law, it is subject to change going through a given state's legislative process for adoption, and thus, likely to be modified and therefore not the same from state to state for those who choose to adopt this model law. Additionally, there may be legal challenges with statements such as "repealing conflicting laws" as proposed in Section 16. Lastly, if the desired requirements are in federal laws, those CFRs or federal laws should be considered for adoption instead of creating new (duplicative) language.

The Subcommittee has removed the following language and provided the updated language posted in the Item Under Consideration.

X. Uniform Shipment Law

Section 1. Purpose

The purpose of this Act is to ensure the accurate shipment of goods.

Section 2. Scope

This Act:

(a) establishes an enforcement program;

(b) empowers the state to promulgate regulations as needed to carry out the provisions of the Act;

(c) provides for civil and criminal penalties.

Section 3. Definitions

As used in this Act:

X.X. Goods

All things which are movable and can be transported.

X.X Carrier

The business that transports an amount of goods.

X.X Shipper

Individuals or businesses that send goods using a carrier.

X.X Shipment

A quantity of goods shipped with a carrier.

X.X. Freight

Goods or charges.

X.X. Freight Broker

The intermediary between the shipper and the carrier who facilitates the transportation of goods.

X.X. Quote

A competitively solicited written offer to furnish supplies or services by a method of procurement that is less formalized than a bid or a proposal.

X.X. Bill of Lading (BOL)

A legal instrument used in the transportation and shipping industries which lists the goods being shipped and the terms under which they will be delivered.

X.X. Progressive Number (Pro Number)

A series of numbers used by carriers to identify and then track a specific order tendered to a specific carrier.

X.X. Inspection Certificate

A document used to signify that shipped goods have been inspected pertaining, but not limited to, classification, density, weight, or measure.

X.X Director. – The _____ of the Department of _____.

Section 4. Enforcing officer: 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;

(1) adherence to quotes when correct documentation is provided to the carrier;

(2) weighing and measuring practices that must be followed;

(3) the required information to be submitted to the shipper if there is a correction fee applied; and

(4) the period of recordkeeping.

Section 5. Weighing and Measuring Practices and Equipment Used

A carrier shall use the following weighing and measuring practices and equipment:

(a) in accordance with the requirements of the latest edition of NIST Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices"; and

(b) examined, tested, and approved for use by a weights and measures officer of this state.

Section 6. Weighing Device Used:

A carrier shall use a scale in accordance with the manufacturer's approved application of the device.

Section 7. Measuring Device Used:

A carrier shall use a measuring device in accordance with the manufacturer's approved application of the device.

Section 8. Inspection Certificate: Required Entries

(a) The documentation, when properly completed and signed shall be prima facie evidence of the accuracy of the procedure followed and the recorded results.

(b) The design of and the information to be furnished on the documentation shall be prescribed by the Director and will include, but not be limited to, the following:

(1) the name and employee ID# of the individual who conducts the inspection;

(2) date and time of the inspection;

(3) signature of the employee who conducts the inspection (digital signature accepted);

(4) identifying information of the weighing or measuring device used to conduct the inspection to include the associated make, model, serial number, and Certificate of Conformance number, if applicable;

(5) indicated reweigh or remeasure value from the weighing device or measuring device;

(6) provide detailed information on the process used to reclassify a shipment according to type of goods and/or shipment density;

(7) provide the dollar amount of the correction fee applied and the description of the fee;

(8) identifying information for the issuing terminal to include physical address and contact name of terminal manager to include phone number and/or email address;

(9) identifying information for both the Pro Number and BOL, if applicable;

(10) the name and address of the shipper from point of origin;

(11) the tendered classification, density, weight, or measurement provided from the shipper and freight broker, if applicable; and

(12) the declared classification, density, weight, or measurement determined by the carrier and freight broker, if applicable.

Section 9. Copies of Inspection Certificates

The carrier shall keep and preserve for the period specified in the regulations a legible copy of each inspection certificate issued to the shipper and freight broker, if applicable. The certificates shall be available for inspection by any weights and measures officer during normal office hours.

Section 10. Prohibited Acts

No entity shall

(a) provide a false classification, density, weight, or measurement;

(b) violate any provisions of this Act or any regulation promulgated under this Act; or

(c) use or have in their possession a device which has been altered to facilitate fraud.

Section 11. Civil Penalties

11.1. Assessment of Penalties. – Any entity who by themselves or by their servant or agent commits any of the acts enumerated in Section 14. Validity of Prosecutions may be assessed by the _____ a civil penalty of:

(a) not less than $ nor more than $ for a first violation,

(b) not less than $ nor more than $ for a second violation within from the date of the first violation, and

(c) not less than $ nor more than $ for a third violation within from the date of the first violation.

11.2. Administrative Hearing. – Any 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.

11.3. Collection of Penalties. – If the respondent has exhausted their administrative appeals and the civil penalty has been upheld, they 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 12. Criminal Penalties

12.1. Misdemeanor. – Any entity who by themselves or by their servant or agent commits any of the acts enumerated in Section 10. 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.

12.2. Felony. – Any entity who by themselves or their servant or agent who intentionally commits any of the acts enumerated in Section 1. 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 13. 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 14. 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 15. 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 16. 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 there under, the existing law shall remain in full force and effect.

Section 17. Citation

This Act may be cited as the "Shipment Act of _____."

Section 18. Effective Date

This Act shall become effective on _____.

At the 2024 NCWM Annual Meeting, Miland Kofford, UT, Chair of the Uniform Shipping Law Task Group, stated that the workgroup met on four separate occasions to discuss this item. As there is currently no movement in the status, the workgroup is moving towards developing the procedures. Miland also wanted to thank the industry and regulators for their participation.

During the Laws and Regulations work session, the committee decided to leave this item as assigned and return it to the Task Group for further development.

Regional Association Reporting:

Western Weights and Measures Association

At the September 2024 WWMA Annual Meeting, Miland Kofford, Chair of the Uniform Shipping Law Task Group, gave the following update: The Task Group has completed a draft version of the proposed Uniform Shipping Law and is working on a detailed implementation plan.

The WWMA L&R Committee thanks the Task Group for their hard work and recommends this item remain assigned.

At the 2023 WWMA Annual Meeting, Steven Harrington (State of Oregon) had no preference in opposition or support for this item. Steve Harrington stated we might run into a situation where we are getting into regulating interstate commerce, so this item needs to be vetted, possibly by a Task Group, to ensure we get the details right.

Matt Douglas (California Department of Food and Agriculture, Division of Measurement Standards) echoed Steven Harrington's comments, with the additional statement that more input would be needed from impacted industries and may need to be addressed by a Task Group. Matt Douglas stated this should be a Developing item.

Kurt Floren (Los Angeles County, California) echoed previous speakers, adding that there has been fraud for many, many years in this area, particularly in the moving industry, with no record of re-weighments, and possessions being held hostage, so it would seem that something needs to be done. However, this would be stepping heavily into interstate commerce with little justification. They stated there needs to be additional justification, and recommends this item be Informational and to call for broad nationwide input.

The WWMA recommends this item be Informational.

Southern Weights and Measures Association

At the October 2024 SWMA Annual Meeting - The committee heard no comments from the floor and recommends this item remain Assigned.

At the 2023 SWMA Annual Meeting, the SWMA L&R Committee does not see any merit in the language as provided and recommends this item be Withdrawn.

Northeastern Weights and Measures Association

At the 2025 NEWMA Annual Meeting in Burlington, VT, Cheryl Ayer, New Hampshire—Uniform Shipping Law Task Group, added two members from the NMFTA. The group is still looking for Third-Party Logistics (3PL) representation. With NMFTA support, the proposal should be ready for voting next year. Then, the task groups would like to create a model regulation, education around shipping, and market equity in the future.

At the 2024 NEWMA Annual meeting, Cheryl Ayer, New Hampshire (submitter) Offered an overview of the proposal and an update from the task groups first meeting. Overall, she is encouraged and noted that this item is moving forward in a positive direction.

NEWMA L&R agrees that this item should remain Assigned.

At the October 2024 NEWMA Interim Meeting, Cheryl Ayer, New Hampshire, Member of the Uniform Shipping Law Task Group – Reported on the work done by the task group between the NCWM annual meeting (July 2024) and now a written report dated October 11, 2024, was provided. She believes the item is fully develop and recommends a Voting status.

Jason Flint, New Jersey – Discussed where this item would reside within the handbooks as most states cannot adopt a law but can adopt an item as part of a regulations. Cheryl Ayer offered that this item should be both a uniform law and part of a handbook that can be adopted by states as a regulation similar to fuels.

Walt Remmert, Pennsylvania – How far out do you see this for complete implementation. Cheryl Ayer offered that it would likely be up to 5 years for complete implementation.

At the 2023 NEWMA Interim Meeting, Cheryl Ayer (New Hampshire and submitter) provided a presentation and PowerPoint. The expectation is to create rules for shipping (and reweighing) products nationwide. Cheryl is willing to participate or chair a task group. Walt Remmert (Pennsylvania) recognizes this is a problem and thanks New Hampshire for taking on this issue. Pennsylvania supports the item and has a volunteer to work on the Task Group if one is organized. Lou Sakin (Holliston, Massachusetts) commends New Hampshire for her presentation. They question if this is an interstate commerce issue and which agencies need to get involved? Seeking help from other jurisdictions for input and help with these issues. Perhaps a task group is appropriate. Jason Flint (New Jersey) likes the idea and wants it to be further developed.

Central Weights and Measures Association

At the May 2025 CWMA Annual meeting, the L&R committee heard no comments and recommended an Assigned status.

At the 2024 CWMA Annual meeting recommends an assigned status to the Task Group.

At the October 2024 CWMA Interim Meeting, Daniel Walker, OH, recommends that this item stay assigned.

At the 2023 CWMA Interim Meeting, Mike Harrington (Iowa) commented they do not fully understand the purpose of this item and asked for clarification from the submitter. At this point they would recommend withdrawing the item because they don't understand how it relates to weights and measures.

The Committee recommends withdrawal. More information is needed to clarify the intent of this item.

OTH-07.1. D Fuels and Lubricants Subcommittee

Source: NCWM Fuels and Lubricants Subcommittee (FALS)

Submitter's Purpose and Justification:

For more information or to provide comment, please contact the FALS Chair:

Vanessa Benchea
Florida Department of Agriculture and Consumer Services / Division of Consumer Services
(813) 868-8263, **Vanessa.Benchea@fdacs.gov**

NIST OWM Executive Summary

OTH-07.1. – Fuels and Lubricants Subcommittee
NIST OWM Recommendation: Developing • NIST OWM supports the work of the committee.

Table 2. Summary of Recommendations
OTH-07.1. – Fuels and Lubricants Subcommittee

	Status Recommendation	Note*	Comments
Submitter			
OWM			
WWMA			
NEWMA			
SWMA			
CWMA			
NCWM			

	Number of Support Letters	Number of Opposition Letters	Comments
Industry			
Manufacturers			
Retailers and Consumers			
Trade Association			

***Notes Key:**
1. Submitted modified language
2. Item not discussed
3. No meeting held
4. Not submitted on agenda
5. No recommendation or not considered

Item Under Consideration:

This agenda item is in Developing status in perpetuity.

This item provides a report on the activities of the Fuels and Lubricants Subcommittee (FALS) by the FALS Chair, which reports to and provides recommendations to the Laws and Regulations Committee.

For more information or to provide comment, please contact the FALS Chair:

Ms. Vanessa Benchea, FALS Chair
Florida Department of Agriculture/Division of Consumer Services
813-868-8263, **Vanessa.Benchea@fdacs.gov**

FALS met on Sunday, January 12, 2025, at the 2025 NCWM Interim Meeting in Charleston, South Carolina to review items related to fuel and automotive fluid standards that appear on the L&R agenda. Block Item 2 (currently assigned to FALS), item FLR-25.2 and block item 1 were discussed. Updates from ASTM D02 subcommittees A and E and for the EV Fluids Focus Group were provided along with a follow up discussion regarding extension nozzles.

Items of new business such as codifying the use of the excess volume correction factor for gasoline ethanol blends and the intent of the current the language in section 7.2.5. Additional Enforcement Action were discussed and resulted in the beginning formations of focus groups for further development.

For Item Block 2 (B2) Reference ASTM Standards D8080 and D8487, the subcommittee discussed the recommended language as provided by NIST and believes this item is fully developed and ready to vote with the addition of "the latest version of" placed ahead of "ASTM D8080" and reads as follows with the additional recommendation as highlighted below:

> **3.11.2.1.X. Identification of Grade. – Each retail dispenser of CNG shall be labeled with an identification of the grade of the product as identified in the latest version of ASTM D8080.**
>
> **3.12.2.X. Identification of Grade. – Each retail dispenser of LNG shall be labeled with an identification of the grade of the product as identified in the latest version of ASTM D8080.**

For Item FLR-25.2 7. Test Methods and Reproducibility Limits, Randy Jennings provided a brief overview of his proposal to remove redundant and outdated language regarding Premium Diesel specifications.

The Subcommittee feels this item is fully developed and is ready for a vote.

For Item Block 1 (B1) Premium Diesel Fuel, the Subcommittee had no additional discussion regarding this item and recommends the language developed from their virtual meeting held December 20, 2024, which adds "When Cloud Point determinations are made," to the language changes that came out of the regionals and reads as follows:

> "NOTE: When Cloud Point determinations are made, ASTM D2500, "Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels" is the referee method, however, bias-corrected results from the automatic Standard Test Methods listed in the latest version of ASTM D975, "Standard Specification for Diesel Fuel" may be used as alternatives with the same limits. Bias-correction equations are noted in the respective precision sections of each automatic test method. In case of dispute, ASTM Test Method D2500 shall be the referee method."

The Subcommittee feels this language is now fully developed and ready for a vote.

ASTM D02.A – D4814 Updates

Marilyn Herman addressed the subcommittee and provided an update on ASTM Subcommittee A related activities that included an overview of states that have adopted a newer version of D4814 that addressed the significant changes to the volatility specifications.

ASTM D02.E Updates

Randy Jennings provided an update on ASTM Subcommittee E's activities that included the ongoing streamlining efforts of combining D7467 (Standard Specification for Diesel Fuel Oil, Biodiesel Blends

(B6-B20)) and D975 (Standard Specification for Diesel Fuel), lubricity precision, the withdrawal of ASTM D8181, the necessity of higher quality fuel be driven by low emission engines, and the need for a specification regarding higher biodiesel blends.

Electric Vehicle Fluids Focus Group

The EV Fluids Focus Group met twice to discuss the fluid requirements for electric vehicles (EVs) including coolant, transmission fluid, gear fluid, and greases, and the extent to which they differ from internal combustion engine (ICE) fluids currently regulated by NIST Handbook 130. The FG intends to survey state regulators to determine how many jurisdictions currently have authority to regulate EV fluids and which ones will need enabling legislation. Since consensus standard setting is still in the developing process determining necessary standard references for EV fluid labels is still premature. However, certain issues with labels could be addressed such as (a) how best to provide application information; (b) the distinction between EV transmission fluid versus gear fluid; and (c) the potential problematic use of references to "universal" or "all" with respect to coolant given that automakers have different standards for EV coolant versus ICE coolant. The FG is in the process of collecting label samples from current products in the marketplace.

The FG also feels that a coordinating an effort from the OEMs into using a single description for EV coolant and that making a bright line distinction between EV transmission fluid versus EV gear fluid would decrease opportunities for confusion. The group believes it would be easier for consumers, for instance, to have a category called "EV coolant" rather than various descriptions including "designated coolant water," which is used by at least one OEM.

If there are questions and if anyone would like to participate in the focus group, please reach out to myself, Vanessa Benchea or Joanna Johnson.

Extension Nozzles

There was a small follow up discussion regarding the use of an extension nozzle during sampling of gasoline products. Russ Lewis (Marathon Petroleum) will provide a contact for Dr. Tabbert to obtain the previous study performed back in the 90's. Dr. Tabbert still requests a survey of what other states with fuel quality programs are doing.

Codification of API MPMS CH 11.3.4 (Excess volume correction factor at wholesale for gasoline ethanol blends) – Prentiss Searles (API) and Steve Carter (IL) briefly discussed their presentations provided at the Meter Manufacturers Association on how to accommodate physical changes to products after they have passed a custody meter where volumes on the Bill of Ladings and invoices may not match without the application of a correction factor to account for the volume expansion. Prentiss Searles is forming a work group to address this in Handbook 44.

7.2.5. Additional Enforcement Action - Dr. Jenny Tabbert (CO) presented concerns she had regarding section 7.2.5. Additional Enforcement Action from the Uniform Fuels and Automotive Lubricants Regulation that covers the applicability of enforcement actions regarding consistently low or high results from the same facility respective to the specification but within reproducibility limits. The language as written did not seem to address this concern for many, specifically out of context. Randy Jennings, the originator of the language, provided historical knowledge and the intent with which it was written. A focus group had formed to address this concern and possibly provide updated language to lessen any future confusion.

NIST OWM Detailed Technical Analysis:

NIST OWM supports the work of the committee and appreciates the update from the FALS Chair.

Summary of Discussions and Actions:

This item is to provide a report on the activities of the Fuels and Lubricants Subcommittee (FALS) which reports and provides recommendations to the Laws and Regulations Committee.

FALS met on Sunday, July 14, 2024, at the 2024 NCWM Annual Meeting in Cleveland, Ohio to review items related to fuel and automotive fluid standards that appear on the L&R agenda. Block items 1 and 2 were discussed. Updates for the EV Fluids Focus Group, ASTM D02 subcommittee E activities and the latest changes to ASTM D4814 were provided.

Items of new business such as a small study on the use of extension nozzles during sampling of gasoline and a website provided by API covering RVP summer requirements along with a further discussion of the organization of the Uniform Fuels and Automotive Lubricants Regulation section were presented.

For Item Block 1 (B1) Renewable Diesel and Diesel, the subcommittee discussed the question raised by John McGuire, NIST OWM, regarding the apparent gap in the concentrations of biodiesel presented in the current language. During the discussion, multiple members supported the common approach that considering rounding rules and test method reproducibility, that diesel fuel blended with biodiesel up to and including 5.49 % complies with standard D975 and diesel fuel blended with biodiesel from 5.5 % to less than or equal to 20.49 % complies with standard D7467. FALS was still in support of Block 1 as written.

For Item Block 2 (B2) Reference ASTM Standards D8080 and D8487, John McGuire, NIST OWM, provided a quick summary of their recommendations for this block item to the subcommittee. He indicated that the developer, Alan Morrison (California Retired) agreed with the approach presented by NIST. There was little discussion on this issue and FALS did not have opposition to the position presented by NIST.

Electric Vehicle Fluids Focus Group

Joanna Johnson presented further efforts for the formation and scope of the EV fluids focus group. The group recognizes that EVs are being rolled out faster than the standards are for lubricants and cooling fluids. Standardized terminology is needed for “transmission and coolant fluids” and there are concerns as to what the consensus term should be when referring to transmission fluid for these vehicle types (e.g., is it an Electric Drive Unit as GM calls it or is it transmission fluid as VW and BMW refer to it, or is it “gear-box” fluid which is how Hyundai refers to it?). Internal combustion engine vehicles use the terms transmission fluid and gear-box fluid to mean different things in existing regulations. The group hopes to work on defining terms and moving forward. Immediate action items include creating a survey of the State Directors with regards to interest and ability to regulate these fluids and a follow up meeting within a month after the annual. If there are questions and if anyone would like to participate in the focus group, please reach out to myself, Vanessa Benchea or Joanna Johnson.

ASTM D02.A – D4814 Updates

Marilyn Herman addressed the subcommittee and indicated that there are changes to ASTM D4814 that include reflecting that both the Denver and Dallas / Fort Worth non-attainment areas are no longer low-RVP gasoline and are instead RFG areas. The latest version D4814-24a reflects this update.

ASTM D02.E Updates

Randy Jennings provided an update on ASTM Subcommittee E's activities that included the streamlining efforts of combining D7467 (Standard Specification for Diesel Fuel Oil, Biodiesel Blends (B6-B20)) and D975 (Standard Specification for Diesel Fuel), updating EPA references, lubricity precision, maintaining a Cetane Index in diesel standards, withdrawal of unused/outdated standards and review of proficiency test data.

Uniform Fuels and Automotive Lubricants Regulation

Randy Jennings made a short presentation following up on an action that he took at the Interim meeting regarding his idea to separate the Uniform FAL Regulation into two sections, Part A and Part B. He will work with Marilyn Herman, Russ Lewis and Vanessa Benchea to devise a survey for State Directors that will provide insight as to if this will be useful.

Extension Nozzle

Dr. Jenny Tabbert (Colorado) presented a small study that was conducted regarding the use of extension nozzles during sampling of gasoline products and questioned whether their use was significant. Russ Lewis (Marathon Petroleum) provided some feedback regarding the original study performed back in the 90's and identified that it was significant enough that their use was included in the sampling methods. Dr. Tabbert also requested what other labs were doing and found that there was a mix of their use.

API Summer Volatility Maps

Prentiss Searles indicated that there is a new fuel map posted on API's website that could be of interest to regulators showing summer gasoline RVP requirements. The web address is https://www.api.org/oil-and-natural-gas/wells-to-consumer/fuels-and-refining/fuels/us-gasoline-requirements.

Regional Association Reporting:

Western Weights and Measures Association

At the September 2024 WWMA Annual Meeting, the L&R Committee thanks the FALS for their hard work and recommends this item remains developing.

Southern Weights and Measures Association

At the October 2024 SWMA Annual Meeting - The committee recommends this item remain a Developing status.

Randy Jennings, representing FALS, states there are no updates currently. FALS will reconvene after the fall meetings to discuss the remaining FALS items.

Northern Weights and Measures Association

At the 2025 NEWMA Annual Meeting in Burlington, VT, no comments were received.

At the October 2024 NEWMA Interim Meeting, no comments were received.

Central Weights and Measures Association

At the May 2025 CWMA Annual meeting, no comments were heard, and the L&R committee recommended the status of Developing.

At the October 2024 CWMA Interim meeting, no comments were received.

OTH-11.1. D Packaging and Labeling Subcommittee

Source: NCWM Packaging and Labeling Subcommittee (PALS)

Submitter's Purpose and Justification:

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.

This item is to provide a report on the activities of the PALS which reports and provides recommendations to the Laws and Regulations Committee.

For more information or to provide comment, please contact the PALS Chair:
Chris Guay (CGGT)
513-652-6597, **guay.cb@gmail.com**

NIST OWM Executive Summary

OTH-11.1. – Packaging and Labeling Subcommittee
NIST OWM Recommendation: Developing • NIST OWM supports the work of the committee.

Table 2. Summary of Recommendations
OTH-11.1. – Packaging and Labeling Subcommittee

	Status Recommendation	Note*	Comments
Submitter			
OWM			
WWMA			
NEWMA			
SWMA			
CWMA			
NCWM			

	Number of Support Letters	Number of Opposition Letters	Comments
Industry			
Manufacturers			
Retailers and Consumers			
Trade Association			

***Notes Key:**

1. Submitted modified language
2. Item not discussed
3. No meeting held
4. Not submitted on agenda
5. No recommendation or not considered

Item Under Consideration:

This agenda item is in Developing status in perpetuity.

Chris Guay Chair of PALS, provided an update on the Guidance Document through an approval process in the NCWM. Upon completion, Chris will send an update to the L&R Committee.

The following additional updates were provided to the NCWM L&R Committee from the PALS Chair Chris Guay.

PALS Update for L&R Committee

The Packaging and Labeling Subcommittee met on Sunday, January 12th as part of the 2025 NCWM Interim Meeting.

PALS presented an update of a draft NCWM Guidance document, which, when finalized and approved, would provide detailed direction to manufacturers, packagers, and regulatory officials regarding added information appearing on the Principal Display Panel (PDP). The Packaging and Labeling Subcommittee received input from approximately 20-25 members.

Several in attendance expressed interest in assisting PALS with this document. The primary areas requiring development are 2 appendices, one of which provides illustrations of principles and one of which details the history of supplemental information in Federal law, regulation, and interpretation.

PALS will continue conducting monthly web meetings through July and update the L&R Committee at the NCWM Annual Meeting in July.

NIST OWM Detailed Technical Analysis:

NIST OWM supports the work of the committee and appreciates the update from the PALS Chair.

Summary of Discussions and Actions:

At the NCWM Annual Meeting: The following has been provided Sub-committee Chair Chris Guay and read during open hearing by John McGuire NIST OWM:

My name is Chris Guay, and I am representing the NCWM Packaging and Labeling Subcommittee (PALS). PALS has two major initiatives underway.

First, we are conducting education for the e-Commerce Uniform regulation which was passed by the Conference last July, focusing on educating manufacturers and retailers. Our most recent training session was for the National Retail Federation in June.

Second, we are working to complete a best practice (guidance) document addressing the addition of quantity related information which may appear of package labels in addition to the required Declaration of New Quantity. We hope to have this document completed by the end of 2024. We plan to forward this document the recently adopted NCWM process for approving best practice documents and publications.

Finally, with John becoming the NIST L&R Committee Technical Advisor, PALS is now looking for a new NE Region representative. Chris will be at the NE regional meeting to discuss possible volunteers.

Regional Association Reporting:

Western Weights and Measures Association

At the September 2024 WWMA Annual Meeting**,** the L&R Committee thanks the PALS for their hard work and recommends this item remains developing.

Southern Weights and Measures Association

At the October 2024 SWMA Annual Meeting, the Committee heard no comments on the floor. Committee recommends this item remain Developing.

Northern Weights and Measures Association

At the 2025 NEWMA Annual Meeting in Burlington VT, no comments were received.

At the October 2024 NEWMA Interim Meeting, no comments were received, item remains informational.

Central Weights and Measures Association

At the May 2025 CWMA Annual meeting, no comments were heard, and the L&R committee recommended the status of Developing

At the October 2024 CWMA Interim Meeting, no comments were received. Committee recommends Developing.

ITEM BLOCK 1 (B1) – PREMIUM DIESEL FUEL

B1–MOS-25.2. V 2.40.1. Premium Diesel Fuel

Source: Colorado Division of Oil and Public Safety.

Submitter's Purpose and Justification:

Many fuel quality testing laboratories around the nation apply state-of-the-art analytical instrumentation to analyze fuel quality. As ASTM has approved and included five reliable alternative standard test methods for the determination of cloud point within the last three decades to the Standard Specification for Diesel Fuel (ASTM D975) and reapproved these five alternative test methods almost on an annual basis ever since, it is time to recognize their effectiveness and include them in HB 130.

One may oppose the addition of these five methods because they are only considered "alternative test methods" to the referee method ASTM D2500. However, HB 130 includes other examples, in which alternative methods are listed with the referee method. (Please see section 2.40.1 Premium Diesel Fuel, (a) Cetane Number, in which it states: "NOTE: ASTM D613 [...] is the referee method; however the following methods can be used to determine cetane number: [...]"

The following ASTM standards are available at https://www.ncwm.com/publication-15: ASTM D975-24, D975-98, D975-17, D975-16, D5771-21, D5772-21, D5773-21, D7683-21 and D7689-21.

The submitter requested Voting status for 2025.

NIST OWM Executive Summary

B1–MOS-25.2. – 2.40.1. Premium Diesel Fuel and FLR 2.2.1. Premium Diesel Fuel

NIST OWM Recommendation: Voting

- NIST OWM would like to point out a needed correction to the Method of Sale Section being used. The new section in the 2025 NIST Handbook 130 is 2.39.2 Premium Diesel, not 2.40.1 as described in the Item Under Consideration.
- This "Note" is being added to MOS Section 2.39.2 Premium Diesel Fuel, (b) Low Temperature Operability and in the Uniform Fuels and Automotive Lubricants Regulations Section 2.2.1 Premium Diesel Fuel, (b) Low Temperature Operability, NIST OWM supports this item for voting.
- The "Note" allows for bias-corrected results from automatic standard test methods in ASTM D975, however, a caveat stating if disputed, the referee method shall be D2500 as the Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels.

  NOTE: When Cloud Point determinations are made, ASTM D2500, "Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels" is the referee method. However, bias-corrected results from the automatic Standard Test Methods listed in the latest version of ASTM D975, "Standard Specification for Diesel Fuel" may be used as alternatives with the same limits. Bias-correction equations are noted in the respective precision sections of each automatic test method. In case of dispute, ASTM Test Method D2500 shall be the referee method.
- The letter "F" needs to be inserted into the Title **F**LR 25.1 2.2.1. Premium Diesel Fuel.

Table 2. Summary of Recommendations
B1–MOS-25.2. – 2.40.1. Premium Diesel Fuel and 2.2.1. Premium Diesel Fuel.

	Status Recommendation	Note*	Comments
Submitter	Voting		
OWM	Voting		
WWMA	Voting		
NEWMA	Voting		
SWMA	Voting		
CWMA	Developing		
NCWM	Voting		

	Number of Support Letters	Number of Opposition Letters	Comments
Industry			
Manufacturers			
Retailers and Consumers			
Trade Association			

***Notes Key:**
1. Submitted modified language
2. Item not discussed
3. No meeting held
4. Not submitted on agenda
5. No recommendation or not considered

Item Under Consideration:

Amend Handbook 130, Uniform Regulation for the Method of Sale of Commodities as follows:

Amend the Uniform Regulation for the Method of Sale of Commodities as follows:

2.40.1. Premium Diesel Fuel. – All diesel fuels identified on retail dispensers as premium, super, supreme, or premier must conform to the following minimum requirements.

.
.
.

(b) **Low Temperature Operability.** – A cold flow performance measurement which meets the latest version of ASTM D975, "Standard Specification for Diesel Fuel," tenth percentile minimum ambient air temperature charts and maps by the latest version of either ASTM D2500, "Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels" or ASTM Standard D4539, "Standard Test Method for Filterability of Diesel Fuels by Low-Temperature Flow Test (LTFT)." The latest version of ASTM D6371, "Standard Test Method for Cold Filter Plugging Point of Diesel and Heating Fuels" may be used when the test results are a maximum of 6 °C below the Cloud Point. Low temperature operability is only applicable October 1 to March 31 of each year.

"NOTE: When Cloud Point determinations are made, ASTM D2500, "Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels" is the referee method, however, bias-corrected results from the automatic Standard Test Methods listed in the latest version of ASTM D975, "Standard Specification for Diesel Fuel" may be used as alternatives with the same limits. Bias-correction equations are noted in the respective precision sections of each automatic test method. In case of dispute, ASTM Test Method D2500 shall be the referee method."

B1–FLR-25.1 – 2.2.1. Premium Diesel Fuel

Item under Consideration

Amend 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:

(b) **Low Temperature Operability.** – A cold flow performance measurement which meets the latest version of ASTM D975, "Standard Specification for Diesel Fuel," tenth percentile minimum ambient air temperature charts and maps by the latest version of either ASTM D2500, "Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels" or ASTM Standard D4539, "Standard Test Method for Filterability of Diesel Fuels by Low-Temperature Flow Test (LTFT)." The latest version of ASTM D6371, "Standard Test Method for Cold Filter Plugging Point of Diesel and Heating Fuels" may be used when the test results are a maximum of 6 °C below the Cloud Point. Low temperature operability is only applicable October 1 to March 31 of each year.

"NOTE: When Cloud Point determinations are made, ASTM D2500, "Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels" is the referee method, however, bias-corrected results from the automatic Standard Test Methods listed in the latest version of ASTM D975, "Standard Specification for Diesel Fuel" may be used as alternatives with the same limits. Bias-correction equations are noted in the respective precision sections of each automatic test method. In case of dispute, ASTM Test Method D2500 shall be the referee method."

NIST OWM Detailed Technical Analysis:

The submitter has worked Block 1 through the regions and FALS and has provided updated language during the NCWM Interim meeting in January 2025, to add a "Note" to (MOS 25.2) Method of Sale, Section 2.40.1 (should be 2.39.2) Premium Diesel Fuel and for (FLR 25.1) Uniform Fuels and Automotive Lubricants Regulation, Section 2.2.1 Premium Diesel Fuel, both addressing Low Temperature Operability which can be found in the 2025 NIST Handbook 130. The "Note" allows for bias-corrected results from automatic standard test methods in ASTM D975, however, a caveat stating if disputed, the referee method shall be D2500 as the Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels.

NIST OWM concurs with the updated submitted language in the Item Under Consideration from FALS and the submitter. This "Note" helps in alternative means for determining Cloud Point and provides a referee method for disputes. NIST OWM also would like to point out a needed correction to the Method of Sale section being used. The new section in the 2025 NIST Handbook 130 is 2.39.2 Premium Diesel not 2.40.1 as described in the Item Under Consideration.

With the language revision (below) provided by the submitter at the October 2024 Annual SWMA meeting, NIST OWM supports this item.

"NOTE: ASTM D2500, “Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels” is the referee method, however, bias-corrected results from the automatic Standard Test Methods listed in the latest version of ASTM D975, “Standard Specification for Diesel Fuel” may be used as alternatives with the same limits. Bias-correction equations are noted in the respective precision sections of each automatic test method. In case of dispute, ASTM Test Method D2500 shall be the referee method."

All five (5) test methods for cloud points are accurate. For this reason, the agenda item should be assigned to FALS to determine a solution for the correct ASTM Standards for cloud point testing.

See the letter (Randy Jennings email) regarding changes to this item submitted to SWMA. These changes are substantial to the item and need to be fully vetted by FALS.

Summary of Discussions and Actions:

At the 2025 NCWM Interim meeting, new language was submitted for membership to consider. The new language has been submitted through an update from FALS (12-20-24), approved by the submitter, and is shown in the above Item Under Consideration

Matt Douglas, Div. of Measurement Standards, California, asked for clarification on which language FALS was referencing, the updated or original. Jenny Talbert, Colorado, the submitter of the item, stated that the recently updated language should be considered and supported as voting with the amended language. Matt agrees and supports Voting. John McGuire, NIST OWM, supports the new language as it provides additional clarity and recommends Voting.

The below Note was the original submission under consideration.

***NOTE*: ASTM D2500, “Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels” is the referee method; however, the following methods can be used to determine cloud point: the latest version of ASTM D5771, “Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels (Optical Detection Stepped Cooling Method)”; the latest version of ASTM D5772, “Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels (Linear Cooling Rate Method)”; the latest version of ASTM D5773, “Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels (Constant Cooling Rate Method)”; the latest version of ASTM D7683, “Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels (Small Test Jar Method)”; the latest version of ASTM D7689, “Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels (Mini Method)”.**

During the L&R Committee work session, they decided to move this item to Voting status.

This item was introduced during the 2025 meeting cycle and has not been considered during an NCWM Interim or Annual meeting.

Regional Association Reporting:

Western Weights and Measures Association

At the September 2024 WWMA Annual Meeting, Jenny Tabbert (Division of Oil and Public Safety – CO) stated, that all five ASTM methods describe simple and automated methods that cover the cloud point determination of petroleum products and (bio)diesel fuels via optical detections of crystallizations in various fuel samples. All these methods can detect cloud points at temperatures as low as -50°C, sometimes even as low as -60°C. That means, even the coldest minimum ambient air temperature of -49°C in Alaska is covered by all 5 ASTM methods. As these methods are ASTM-approved and partly around for a long

time already, it is reasonable to believe that many fuel quality laboratories are equipped with precisely these analytical instruments to run routine analyses on diesel fuel samples. The submitters' lab for example applies one of these five methods in question (ASTM D5771) to determine the cloud point of all diesel fuels on a daily basis during the cloud point season, and they purchased this specific instrument because it is an approved method based on the Standard Specification of Diesel Fuels (ASTM D975). It is her understanding that there is no reason to exclude this method nor the other 4 methods for cloud point determinations of premium diesel fuels, especially since the cloud point requirements of premium diesel fuels are the exact same as regular diesel fuels. (Detailed written testimony will be posted on the WWMA website.)

Randy Jennings LLC, representing FALS, stated support for this item, but suggests the addition of bias-corrected results when applying these alternative test methods. He also stated that FALS will review this item during their virtual meeting in fall.

Steven Harrington (Department of Agriculture – OR) appreciated the proposal but suggests referencing ASTM D975, "Standard Specification of Diesel Fuel" as the requirement for any cloud point standard test method rather than listing out each test individually.

Matt Douglas (Division of Measurement Standards – CA) would like to receive feedback from FALS. He mentioned that a referee method may be required in case of pushback.

Mr. Jennings agrees with Mr. Douglas that the original method should be used in case of disputes.

The WWMA L&R Committee supports the recommendations made by Randy Jennings and Steve Harrington and recommends this item block for voting.

Southern Weights and Measures Association

At the October 2024 SWMA Annual Meeting - Based on comments heard from the floor the committee recommends Voting status as amended in the comments shared below: Randy Jennings Independent Consultant commented that he worked with the submitted on some edits which are below and recommends Block 1 to have a voting status. Below are recommended edits from the submitter: Ladies and Gentlemen, Mr. Onwiler, L&R Chairs of the Regional Associations and Chair of FALS,

I am the submitter of the L&R Agenda Item Block 1 (B1) Premium Diesel Fuel (MOS-25.2 and LR-25.1), WWMA Committee Member of L&R as well as a Member of FALS.

As you can see in the WWMA L&R Annual Report, Item Block 1 was supported by Randy Jennings, Steve Harrington and Matt Douglas for voting in 2025 during the Open Hearing session of the annual WWMA meeting. However, Mr. Jennings and Mr. Harrington voiced valuable improvement ideas for this item. Specifically, Mr. Jennings suggested adding that bias-corrected results should be reported when the alternative cloud point test methods are applied to determine the cloud point of premium diesel fuels, and Steve Harrington pointed out that listing all five alternative ASTM test methods for determining cloud point is not necessary. Instead, referencing ASTM D975, "Standard Specification of Diesel Fuel" will suffice. And finally, Mr. Douglas suggested feedback from FALS.

Taking these valuable comments to heart, I amended the proposed language as follows:

"NOTE: ASTM D2500, "Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels" is the referee method, however, bias-corrected results from the automatic Standard Test Methods listed in the latest version of ASTM D975, "Standard Specification for Diesel Fuel" may be used as alternatives

with the same limits. Bias-correction equations are noted in the respective precision sections of each automatic test method. In case of dispute, ASTM Test Method D2500 shall be the referee method."

I am looking forward to evaluating the change in language during the upcoming virtual FALS meeting, and thank the Regional L&R Chairs in advance for considering this improved version during their upcoming annual meetings.

Additionally, I am herewith sending you my statement made during the Open Hearing at the WWMA Annual Meeting:

"Hello,

My name is Jenny Tabbert and I run the fuel quality lab of the State of Colorado, and I am the submitter of item block 1.

The purpose of this proposal is to include five ASTM standard test methods that can be used to determine the cloud point of premium diesel fuels (and diesel fuels in general).

The section that addresses the requirements to be met by premium diesel fuels to be considered a Premium Diesel Fuel in HB 130, also addresses the standard test methods that can be used to determine these properties, but currently, five methods that are approved by ASTM for the determination of cloud point since 1998, 2016 and 2024 are missing in HB 130.

ASTM D5771, ASTM D5772, ASTM D5773, ASTM D7683, and ASTM D7689, all describe simple and automated methods that cover the cloud point determination of petroleum products and (bio)diesel fuels via optical detections of crystallizations in the various fuel samples. All these methods can detect cloud points at temperatures as low as -50°C, sometimes even as low as -60°C. That means, even the coldest minimum ambient air temperature of -49°C in Alaska is covered by all 5 ASTM methods.

As these methods are ASTM-approved and partly around for a long time already, it is reasonable to believe that many fuel quality laboratories are equipped with precisely these analytical instruments to run routine analyses on diesel fuel samples. Our lab for example applies one of these five methods in question (ASTM D5771) to determine the cloud point of all diesel fuels on a daily basis during the cloud point season, and we purchased this specific instrument because it is an approved method based on the Standard Specification of Diesel Fuels (ASTM D975). It is my understanding that there is no reason to exclude this method nor the other 4 methods for cloud point determinations of premium diesel fuels, especially since the cloud point requirements of premium diesel fuels are the exact same as regular diesel fuels.

Northeastern Weights and Measures Association

At the 2025 NEWMA Annual Meeting in Burlington VT, John McGuire, NIST OWM – Pointed out that the section number in the current HB130, should be 2.39.2 not 2.40.1. He believes it will be deemed as an editorial change.

At the October 2024 NEWMA Interim Meeting, Jim Willis, New York – Offer that this item is just adding clarifying notes to ASTM's D2500 standard in the handbook. No objections to the item, but not necessary. New York uses the ASTM D975 standard, which includes the standard D2500 and this note already exists in the text.

Central Weights and Measures Association

At the May 2025 CWMA Annual meeting, Scott Fenwick (CFAA) supports the item and the block. It is all clarification and recommends voting. Mike Harrington – Iowa – Supports the Block and recommends voting.

The L&R Committee recommends Voting status.

At the October 2024 CWMA Interim Meeting, Jenny Tabbert, CO, and submitter of this item emailed information and would like an editorial change by removing the underlined NOTE and replace with the following:

NOTE: ASTM D2500, “Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels” is the referee method, however, bias-corrected results from the automatic Standard Test Methods listed in the latest version of ASTM D975, “Standard Specification for Diesel Fuel” may be used as alternatives with the same limits. Bias-correction equations are noted in the respective precision sections of each automatic test method. In case of dispute, ASTM Test Method D2500 shall be the referee method."

ITEM BLOCK 2 (B2) – REFERENCE ASTM STANDARDS D8080 AND D8487

B2–FLR-24.1. V 3.11.2.1.X. Identification of Grade. and 3.12.2.X. Identification of Grade

Source: AMT Consulting

Submitter’s Purpose and Justification:

ASTM Committee D03 on Gaseous Fuels has adopted two new fuel quality specifications for natural gas vehicles:

ASTM D8080 “Standard Specification for Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) Used as a Motor Vehicle Fuel”

ASTM D8487 “Standard Specification for Natural Gas, Hydrogen Blends for Use as a Motor Vehicle Fuel”.

These specifications are a replacement for both SAE J1616 (CNG) and SAE J2699 (LNG).

ASTM D8080 is intended for natural gas vehicle fuels that have no additional hydrogen blend in the fuel. The specification establishes performance grades based on the fuel resistance to engine knock, energy content, and sulfur levels.

ASTM D8487 is intended for natural gas vehicle fuels that have additional hydrogen blended in the fuel. The specification covers natural gas fuels that have been blended with hydrogen and establishes performance grades based on the fuel resistance to engine knock, energy content, and sulfur levels. This specification is to be used in locations where hydrogen is being blended into the natural gas supply. This will become increasingly important as the natural gas supply has hydrogen blended to meet the decarbonization efforts of the US.

Both these standards are applicable at the point of dispensing into the vehicle fuel tank.

This proposal will require dispensers to be labeled with the product grade. This will require the product composition to be determined.

The submitter requested that the status be "Developing".

NIST OWM Executive Summary

B2–FLR-24.1. – 3.11.2.1.X. Identification of Grade and 3.12.2.X. Identification of Grade

NIST OWM Recommendation: Voting

- During the NCWM 2025 Interim meeting, FALS revised the language in Block 2 (3.11.2.1.X. and 3.12.2.X.) in the NIST OWM analysis to include the additional wording "in the latest version." Both NIST OWM and FALS support this change. NIST OWM believes this provides clarity and inclusivity of language already used within NIST Handbook 130. The language below is in the Item Under Consideration.

  3.11.2.1.X. Identification of Grade. – Each retail dispenser of CNG shall be labeled with an identification of the grade of the product as identified in the latest version of ASTM D8080.

  3.12.2.X. Identification of Grade. – Each retail dispenser of LNG shall be labeled with an identification of the grade of the product as identified in the latest version of ASTM D8080.

- 3.11.2.1.4 should be reflected as 3.11.2.1.X, and 3.12.2.2 should be reflected as 3.12.2.X in Pub 16. Once the item has been presented to the L&R Committee and passed through the NCWM as voting, these numbers will appear with their appropriate enumeration.

Table 2. Summary of Recommendations

B2–FLR-24.1. – 3.11.2.1.X. Identification of Grade and 3.12.2.X. Identification of Grade

	Status Recommendation	Note*	Comments
Submitter	Assigned		
OWM	Voting		
WWMA	Voting		
NEWMA	Assigned		
SWMA	Assigned		
CWMA	Developing		
NCWM	Voting		

	Number of Support Letters	Number of Opposition Letters	Comments
Industry			
Manufacturers			
Retailers and Consumers			
Trade Association			

***Notes Key:**

1. Submitted modified language
2. Item not discussed
3. No meeting held
4. Not submitted on agenda
5. No recommendation or not considered

Item Under Consideration:

B2: FLR-24.1 A 3.11.2.1.X. Identification of Grade. and 3.12.2.X. Identification of Grade.

Item Under Consideration:

Amend the Uniform Fuels and Automotive Lubricants Regulation as follows:

3.11.2.1.X. Identification of Grade. – Each retail dispenser of CNG shall be labeled with an identification of the grade of the product as identified **in the latest version of** ASTM D8080.

3.12.2.X. Identification of Grade. – Each retail dispenser of LNG shall be labeled with an identification of the grade of the product as identified in **the latest version of** ASTM D8080**.**

NIST OWM Detailed Technical Analysis:

During the NCWM 2025 Interim meeting, FALS revised the language in Block 2 (3.11.2.1.X. and 3.12.2.X.) in the NIST OWM analysis to include the additional wording "in the latest version." Both NIST OWM and FALS support this change. NIST OWM believes this provides clarity and inclusivity of language already used within NIST Handbook 130.

3.11.2.1.4 should be reflected as 3.11.2.1.X, and 3.12.2.2 should be reflected as 3.12.2.X in Pub 16. Once the item has been presented to the L&R Committee and passed through the NCWM as voting, these numbers will appear with their appropriate enumeration.

The language below is in the Item Under Consideration.

NIST OWM recommends the following language change to the item under consideration, which has been supported by the submitter and FALS for voting:

3.11.2.1.X. Identification of Grade. – Each retail dispenser of CNG shall be labeled with an identification of the grade of the product as identified **in the latest version of** ASTM D8080.

3.12.2. X. Identification of Grade. – Each retail dispenser of LNG shall be labeled with an identification of the grade of the product as identified in **the latest version of** ASTM D8080**.**

Block 2 (**3.11.2.1.X.** and **3.12.2.X.**) has been addressed by the submitter. Table 1 has been updated to reflect the Labeling of the Identification of Grades in both ASTM D8080 and D8487 "Standard Specification for Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) Used as a Motor Vehicle Fuel" & "Standard Specification for Natural Gas, Hydrogen Blends for Use as a Motor Vehicle Fuel." respectively.

The submitter worked and succeeded in addressing the labeling issues and determined that the calculated methane number (MNc) and corresponding sulfur content can be found in the updated Table 1 in both updated ASTM 8080-24 and ASTM 8487-24 standards.

NIST OWM recommends the following language change to the item under consideration:

> **3.11.2.1.4. Identification of Grade. – Each retail dispenser of CNG shall be labeled with an identification of the grade of the product as identified in ASTM D8080.**
>
> **3.12.2.2. Identification of Grade. – Each retail dispenser of LNG shall be labeled with an identification of the grade of the product as identified in ASTM D8080.**

FLR 24.1 has two remaining items in Block 2 (**3.11.2.1.X.** and **3.12.2.X.)** NIST OWM, the submitter and the NCWM L&R Committee have Assigned this item to FALS for further review. With the inclusion of the ASTM Standard, the submitter needs to align the labeling of the dispenser with the appropriate dispenser language differentiating the grades being sold. The submitter has proposed editorial changes to ASTM to align the Block 2 (**3.11.2.1.X.** and **3.12.2.X.)** labeling of the dispenser with the appropriate dispenser language differentiating the grades being sold.

The two remaining items in Block 2 (**3.11.2.1.X.** and **3.12.2.X.)** NIST OWM believes they should be Assigned to FALS for further review.

A multitude of questions that have resonated during a discussion with the submitter.

1. What type of Grade are we discussing in the proposed language?

2. Within the ASTM standards for the grades to be identified, what will that look like? Will the sulfur content and/or the hydrogen max % be identified on the label? This is not currently depicted within the ASTM Standard D8487.

3. Language would need to be inserted into the ASTM D8487 to convey this requirement as to the hydrogen levels. Currently the submitter is preparing an editorial solution to the ASTM D8487 chart.

4. Additionally, how would the dispenser labeling look or be more appropriately displayed to the consumer to indicate what grade of fuel they are purchasing?

These and other questions have risen, and we believe this would be a substantial change to the L&R Voting item. Collectively, the Submitter and NIST OWM have concluded that this item should be downgraded and Assigned to the Fuels and Lubrication Subcommittee (FALS) for further development. This will give the submitter and NIST OWM time to rework the language and update this portion of the agenda item (FLR 24.1) to FALS.

Although there are certain specifications setting forth "Fuel Grades" in ASTM D8080 Table 1, States must consider the allowable sulfur content acceptable for their respective jurisdiction. Additionally, which

Methane Number Calculated MNc (65 or 75) would be used on the label for the dispenser and correspond to the MNc.

As this item is being developed, consideration for additional advertising and labeling of gasoline along with other motor vehicle fuels should be reviewed to ensure all aspects have been addressed, such as::

A person who sells natural gas at retail for use as motor vehicle fuel shall display the following labels in a conspicuous, legible, and indelibly marked manner on each customer-facing side of the dispenser:

(a) The natural gas fuel rating label meeting the retail sale requirements of the Federal Trade Commission in accordance with:

(1) 16 CFR Part 309 "Labeling Requirements for Alternative Fuels and Alternative Fueled Vehicles," for compressed natural gas.

(2) 16 CFR Part 306 "Automotive Fuel Ratings, Certification and Posting," for liquefied natural gas.

(b) The product name:

(1) "Compressed Natural Gas" or "CNG" for compressed natural gas.

(2) "Liquified Natural Gas" or "LNG" for liquified natural gas.

The fuel grade designation (MNC) as determined by the most recent version of ASTM International D8080 or the fuel grade D8487.

The equivalent conversion factor is:

(1) "1 Gasoline Gallon Equivalent (GGE) equals 5.66 lb of Compressed Natural Gas" for compressed natural gas.

(2) "1 Diesel Gallon Equivalent (DGE) equals 6.06 lb of Liquefied Natural Gas" for liquified natural gas.

Natural gas sold as motor vehicle fuel shall meet at least one of the latest specifications set forth in ASTM International Standard Specifications D8080 or D8487,

OWM believes this item has merit and looks forward to its development. The submitter should review any regulations pertaining to LNG and CNG in FTC, EPA or other requirements.

Additionally, the submitter cited the incorrect Regulation within their submitted Form 15. The Item under Consideration for B2: MOS-24.1 and FLR-24.1 are to amend the Uniform Regulation for the Fuels and Lubricants Regulation and not the cited Method of Sale Regulation

MOS 24.1 (should be relabeled by NCWM) NIST OWM agrees with the change in sections 2.9 and 2.10 by replacing SAE J1616 and SAE J2699 with ASTM D8080 "Standard Specification for Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) Used as a Motor Vehicle Fuel. This change will be in line with the more widely used ASTM Standard within NIST Handbook 130.

With the inclusion of the ASTM Standard, the submitter needs to align the labeling of the dispenser with the appropriate dispenser language differentiating the grades being sold.

Summary of Discussion and Actions:

At the 2025 NCWM Interim meeting, John McGuire, NIST OWM, discussed updated language within the NIST OWM analysis and provided such language to FALS on Sunday, January 12, 2025, for review prior to the open hearings. During the FALS meeting and with the subcommittee's support, additional language was added for more clarity. Taking into consideration the inclusion of "**the latest version of** ", NIST OWM agreed and presented this revised language to the Laws & Regulations Committee during open hearings. The revised language reads:

> **3.11.2.1.4. Identification of Grade. – Each retail dispenser of CNG shall be labeled with an identification of the grade of the product as identified in the latest version of ASTM D8080.**
>
> **3.12.2.2. Identification of Grade. – Each retail dispenser of LNG shall be labeled with an identification of the grade of the product as identified in the latest version of ASTM D8080.**

Matt Douglas, CA Division of Measurement Standards, prepared to support the language identified in the NIST OWM analysis, although Matt recommended changing the word "identified" to "determined." Randy Jennings, FALS Vice Chair, stated FALS is comfortable with the language "identified" as it is used throughout NIST Handbook 130.

At the 2024 NCMW Annual meeting, NIST OWM concurs with the language and supports FLR 24.2 Sections 2.9 and 2.10 as voting. The recommended change from SAE J1616 and SAE J2699 to ASTM D8080 aligns with the more widely used ASTM standards in NIST Handbook 130. NIST OWM supports for Voting Section 2.XX with additional changes. NIST OWM, in concert with the submitter, discussed 2.XX and concluded a needed change to the Title would be more appropriate. The following changes should be made to the item under consideration:

2.XX. ~~Compressed~~ Natural Gas ~~(CNG)~~ blended with hydrogen **as a Motor Vehicle Fuel**. - Shall meet the latest version of ASTM D8487 "Standard Specification for Natural Gas, Hydrogen Blends for Use as a Motor Vehicle Fuel." (Amended 20XX

These three aspects of FLR 24.2 (Section 2.9. Liquefied Natural Gas (LNG) Vehicle Fuel, 2.10. Compressed Natural Gas (CNG)., and 2.XX. Compressed Natural Gas (CNG) Blended with Hydrogen) within Block 2 have been voted on and adopted as amended.

As for FLR 24.1 has two remaining items in Block 2 (**3.11.2.1.X.** and **3.12.2.X.)** NIST OWM and the submitter believe they should be Assigned to FALS for further review. With the inclusion of the ASTM Standard, the submitter needs to align the labeling of the dispenser with the appropriate dispenser language differentiating the grades being sold. The L&R Committee has downgraded these two items in FLR 24.1 and have assigned them the Fuel and Lubrication Subcommittee.

During the 2024 Annual NCWM Laws and Regulations Committee work session, the committee decided to move Section 2.9. Liquefied Natural Gas (LNG) Vehicle Fuel, 2.10. Compressed Natural Gas (CNG)., and 2.XX. Compressed Natural Gas (CNG) Blended with Hydrogen as Voting (passed 2024). The Committee also decided to downgrade Section 3.11.2.1.X. Identification of Grade. and 3.12.2.X. Identification of Grade to Assigned.

At the 2024 NCWM Interim meeting Loren Minnich, NIST OWM provided comments within their summary addressing the need to change the MOS (24.1) designation to a FLR (24.1) designation. This would require the NCWM to provide the next series number in the FLR title. Loren also mentioned that this proposal replaces SAE standards with ASTM standards. Kevin Schnepp, Division of Measurement

Standards CA. stated hydrogen blends are already happening and agrees with the NIST recommendations, which should be incorporated and keep this moving to a vote.

During the NCWM L&R Committee work session the committee decided to amend the recommended designation of Developing from all four regions and moved this item forward for voting.

Regional Association Reporting:

Western Weights and Measures Association

At the September 2024 WWMA Annual Meeting Matt Douglas (Division of Measurement Standards – CA) supports this well vetted item as voting as it meets ASTM specifications and as it is partly adopted in Europe.

The WWMA L&R Committee recommends this item as voting.

At the 2023 WWMA Annual Meeting, Kevin Schnepp (California Department of Food and Agriculture, Division of Measurement Standards) stood in support of both items in Block 2. They stated that the ASTM standard that is specified in this item has been thoroughly vetted and is also a standard the accounts for hydrogen blending in natural gas, which is already adopted in Europe. Kevin. Schnepp stated that these specifications meet the needs of industry and producers.

The WWMA recommends this item as Developing, as requested by the submitter.

Southern Weights and Measures Association

At the 2023 SWMA Annual Meeting, the SWMA L&R Committee recommends this item as Developing as requested by the submitter. The Committee would also like to alert NCWM that some items listed in Block 2 are referenced incorrectly to the Method of Sale of Commodities Regulation and should reference the Fuels and Automotive Lubricants Regulation and are listed below:

MOS-24.1 to FLR-24.#

Amend NIST HB 130, ~~**B. Uniform Regulation for the Method of Sale of Commodities**~~ **F. Uniform Fuels and Automotive Lubricants Regulation**: sections 2.9 and 2.10 by replacing SAE J1616 and SAE J2699 with ASTM D8080 "Standard Specification for Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) Used as a Motor Vehicle Fuel."

Amend NIST HB 130 ~~**B. Uniform Regulation for the Method of Sale of Commodities**~~ **F. Uniform Fuels and Automotive Lubricants Regulation**, Section 2 by adding a new paragraph for ASTM D8487 "Standard Specification for Natural Gas, Hydrogen Blends for Use as a Motor Vehicle Fuel.".

At the October 2024 SWMA Annual Meeting - The committee heard no comments from the floor. Committee recommends Block 2 remain Assigned.

Northeastern Weights and Measures Association

At the 2025 NEWMA Annual Meeting in Burlington VT, no comments were received

At the 2024 NEWMA Annual meeting, John McGuire, NIST OWM, offered the following comments:

- MOS 24.1 in Pub 15 has been changed to FLR 24.2 (Pub 16) to accurately convey the Subject Series (identifier).

- NIST OWM concurs with the language and supports FLR 24.2 Sections 2.9 and 2.10 as voting. The recommended change from SAE J1616 and SAE J2699 to ASTM D8080 aligns the more widely used ASTM standards in Handbook 130

NIST OWM supports Section 2.XX with additional changes. NIST OWM in concert with the submitter discussed 2.XX and concluded a needed change to the Title would be more appropriate. The following change should be made to the item under consideration:

2.XX. ~~Compressed~~ Natural Gas ~~(CNG)~~ blended with hydrogen **as a Motor Vehicle Fuel**. - Shall meet the latest version of ASTM D8487 "Standard Specification for Natural Gas, Hydrogen Blends for Use as a Motor Vehicle Fuel."

(Amended 20XX)

Removing the word "Compressed" and adding the words "**as a Motor Vehicle Fuel"** more aligns with the ASTM standard then the current Item under consideration.

NEWMA L&R agrees the proposed changes and with the changes that this block should be Voting.

At the October 2024 NEWMA Interim Meeting, Jim Willis, New York – Stated he is still waiting for the clarification from ASTM.

At the 2023 NEWMA Interim Meeting, no comments were heard. NEWMA supports this as a Developing item.

Central Weights and Measures Association

At the May 2025 CWMA Annual meeting, Scott Fenwick (CFAA) supported the term "identification" rather than "determination." He recommends that it remain "identification." Mike Harrington supports the term "identification" and recommends voting.

The L&R Committee recommends Voting status.

At the 2024 CWMA Annual meeting Mr. Loren Minnich, NIST – Supports this item. On 2.XX Loren recommended the word Compressed be deleted and the title be "Natural Gas Blended with Hydrogen as a Motor Vehicle Fuel."

At the October 2024 CWMA Interim Meeting, no comments were received.

At the 2023 CWMA Interim Meeting, no comments were heard. The Committee recommends this Item be Developing as requested by the submitter.

ITEM BLOCK 3 (B3) – ICE CREAM

B3–MOS-24.5. V Section 1.7.1. Factory Packaged Ice Cream and Similar Frozen Products

Source: NCWM Laws and Regulations Committee

Submitter's Purpose and Justification:

To amend the language in NIST Handbook 130, section 1.7.1. to align with Section 3.11 Ice Cream Novelties.

NIST OWM Executive Summary

B3–MOS-24.5. – Section 1.7.1. Factory Packaged Ice Cream and Similar Frozen Products
NIST OWM Recommendation: Voting NIST OWM agrees this is a needed update to the definition of the NIST Handbook 130 Method of Sale Section 1 Food Products, Section 1.7.1. This definition aligns with the changes to the test methods that were amended in the 2025 NIST Handbook 133 version through the NCWM. The inclusion of the language "Ice Pops" allows for harmonization between the definition and test procedures.

Table 2. Summary of Recommendations

B3–MOS-24.5. – Section 1.7.1. Factory Packaged Ice Cream and Similar Frozen Products

	Status Recommendation	Note*	Comments
Submitter	Informational		
OWM	Voting		
WWMA	Voting		
NEWMA	Voting		
SWMA	Voting	1	
CWMA	Voting		
NCWM	Voting		

	Number of Support Letters	Number of Opposition Letters	Comments
Industry			
Manufacturers			
Retailers and Consumers			
Trade Association			

***Notes Key:**

1. Submitted modified language
2. Item not discussed
3. No meeting held
4. Not submitted on agenda
5. No recommendation or not considered

Item Under Consideration:

Amend the language in NIST Handbook 130, section 1.7.1. as follows:

1.7.1 ~~Factory Packaged~~ Ice Cream**, Ice Pops**, and Similar Frozen ~~Products~~. **Novelties** – Ice cream, **ice pops,** ice milk, frozen yogurt, and similar products shall be kept, offered, or exposed for sale in terms of fluid volume.

NIST OWM Detailed Technical Analysis:

NIST OWM agrees this is a needed update to the definition of the NIST Handbook 130 Method of Sale Section 1 Food Products, Section 1.7.1. This definition aligns with the changes to the test methods that were amended in the 2025 NIST Handbook 133 version through the NCWM. The inclusion of the language "Ice Pops" allows for harmonization between the definition and test procedures.

NIST OWM concurs with the need to update the language for the Method of Sale. This language is in NIST HB 130 Section 1 Food Products. The change in this language aligns with the Method of Sale and the modified language with test methods in NIST Handbook 133 Section 3.11.1 Ice Cream, Ice Pops and Similar Frozen Novelties.

1.7.1 ~~Factory Packaged~~ Ice Cream**, ~~Ice Pops~~**, and Similar Frozen ~~Products~~. **Novelties** – Ice cream, ice milk, frozen yogurt, and similar products shall be kept, offered, or exposed for sale in terms of fluid volume.

At the NCWM Annual meeting, NIST OWM recognized that the change in NET 24.1 would prompt an alignment with NIST Handbook 130 Method of Sale Section 1.7.1. NIST OWM has presented the recommended change of MOS 24.5 (Method of Sale Section 1.7.1.) This item has remained an Informational item.

Summary of Discussions and Actions:

At the 2025 NCWM Interim meeting, Matthew Curran, Florida, offers support for Voting on this item with an update to include the word "Ice Pops" within the definition. Ice Pops (a non-dairy frozen dessert) has been added to the title of the definition, and Matt recommends that it be included within the actual definition of the item for consistency, as the title includes frozen dairy desserts and non-dairy frozen desserts. Kurt Floren County of Los Angeles, California, agrees with the recommended change as both dairy products

within the definition are compliance tested using the test methods in NIST Handbook 133 Section 3.11 Ice Cream Novelties, which was the reason for the definition change.

At the NCWM 2024 Annual: Modified the Title language in NET 24.1 to allow the intent of the test procedure to incorporate ice cream, ice pops, and similar frozen products and tend not to be so exclusive. In doing so, NIST OWM recognized that this change would prompt an alignment with NIST Handbook 130 Method of Sale Section 1.7.1. NIST OWM has presented the recommended change of MOS 24.5 (Method of Sale Section 1.7.1.) to the L&R Committee and worked with the submitter on the additional edits in NET 24.1. The L&R committee has included these changes in the agenda item and incorporated MOS 24.5 as an Informational item into a newly formulated Block 3 in Pub 16.

The Committee informed the attendees of the purpose of this item – to resolve a language conflict between NIST Handbook 133 and NIST Handbook 130. The item remains Informational.

At the NCWM 2024 Interim: After the Interim meeting, the Committee received additional information regarding NET 24.1, which conflicted with NIST Handbook 130 Section 1.7.1 Factory Packaged Ice Cream and Similar Frozen Products. To resolve the conflict, the committee added MOS 24.5 to amend the title of NIST Handbook 130 Section 1.7.1.

The Committee has worked with the submitter to resolve the issue, and both agree with the proposed item as it appears here.

Regional Association Reporting:

Western Weights and Measures Association

At the September 2024 WWMA Annual Meeting, Kurt Floren (County of Los Angeles – CA) stated that this item harmonizes language between handbooks 133 and 130 and supports the item.

Matt Douglas (Division of Measurement Standards – CA) echoes Mr. Floren's statement and expressed support of the item.

The WWMA L&R Committee recommends this item as voting.

Southern Weights and Measures Association

At the October 2024 SWMA Annual Meeting, based on the comments heard from the floor committee recommends this item move to Voting status with the removal Ice Pops from this sections title.

Committees amended language would appears as:

1.7.1 ~~Factory Packaged~~ Ice Cream**, ~~Ice Pops~~**, and Similar Frozen ~~Products~~. **Novelties** – Ice cream, ice milk, frozen yogurt and similar products shall be kept, offered, or exposed for sale in terms of fluid volume.

Matt Curran from the state of Florida commented that consideration should be given to separate dairy from non-dairy products.

Northeastern Weights and Measures Association

At the 2025 NEWMA Annual Meeting in Burlington, VT, Cheryl Ayer, New Hampshire, fully supports the proposal.

Jim Willis, New York – Fully supports proposal.

At the October 2024 NEWMA Interim Meeting, no comments were received.

Central Weights and Measures Association

At the May 2025 CWMA Annual meeting, Ron DePouw, Wisconsin, supports the item as changed and recommends voting.

The L&R Committee recommends Voting status**.**

At the October 2024 CWMA Interim Meeting, Daniel Walker, OH, supports this item and recommends a Voting status. Ron DePouw, WI, supports this item.

ITEM BLOCK 4 (B4) – MOISTURE ~~ALLOWANCE~~ CONSIDERATION

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, POL 25.1 - 2.6.12. Point-of-Pack Inspection Guidelines

Source: Michigan Department of Agriculture & Rural Development

Submitter's Purpose and Justification:

Change the language for the moisture gray area from "moisture allowance" to "moisture consideration."

NIST OWM Executive Summary

B4–NET-25.1. – 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, POL 25.1 - 2.6.12. Point-of-Pack Inspection Guidelines

NIST OWM Recommendation: Assigned

- It seems the item was developed using a "search and find"/" cut and paste" feature. A , well-thought-out line by line detailed review and analysis should take place of the over 50-plus changes spanning six different sections of Handbook 133 being made to ensure that changes to words do not change the context. The ramifications and considerations in applying, allowing, and /or requesting moisture allowance, along with the NCWM Policy Interpretations, Guidelines in Handbook 130 2.5.6, need to be fully considered when recognizing gray area considerations.
- Moisture allowance has been recently discussed in various aspects within the NCWM. NIST OWM believes this should remain developing, and the Moisture Allowance Task Group should be reinstated to address the concerns and considerations of this item.

- In NIST Handbook 133 Section 2.3.8, NIST OWM proposes a language change shown below.

  2.3.8. Moisture Allowances

  When no predetermined ~~allowance~~ **value for the specific commodities** is found in NIST Handbook 133, **Table 2-3 Moisture Allowance Consideration**, the potential for moisture loss **or "gray area"** must be considered. Inspectors should follow their jurisdiction's guidance for making their determination on an acceptable moisture allowance **consideration**.
  (Added 2010) **(Amended 20XX)**

- Appendix F. Glossary in Handbook 133 is missing the language change in Pub 16, as well as the Index.
- On page 70, line 38, under example, within Pub 16 of the L&R Report, the word "consideration" should not follow the Maximum Allowable Variation. MAVs are not a consideration.
- On page 71, lines 7 and 14, the parenthetical language "Amended 2010 & 2014," respectively, should not be stricken.
- The parenthetical language Amended 2002 in the newly moved paragraph to the item should remain, with the added 20XX included for (if/when) adoption.

Table 2. Summary of Recommendations

B4–NET-25.1. – 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, POL 25.1 - 2.6.12. Point-of-Pack Inspection Guidelines

	Status Recommendation	Note*	Comments
Submitter			
OWM	Assigned	1	
WWMA	Developing		
NEWMA	Assigned		
SWMA	Developing		
CWMA	Voting		
NCWM	Voting		

	Number of Support Letters	Number of Opposition Letters	Comments
Industry			
Manufacturers			
Retailers and Consumers			
Trade Association			

***Notes Key:**

1. Submitted modified language
2. Item not discussed
3. No meeting held
4. Not submitted on agenda
5. No recommendation or not considered

B4–POL-25.1. – 2.6.12. Point-of-Pack Inspection Guidelines

Item Under Consideration:

Amend Handbook 130 NCWM Policy, Interpretations, and Guidelines as follows:

Table of Contents

Chapter 1. General Information

1.2. Package Requirements

1.2.6. Deviations Caused by Moisture Loss or Gain

1.2.6.1. Applying a Moisture ~~Allowance~~Consideration

Test procedures for flour, some meat, and poultry are based on the concept of a "moisture **allowance consideration**" also known as a "gray area" or "no decision" area (see Section 2.3.8. "Moisture **Allowance Considerations**"). 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 consideration**" or "gray area." (Added 2010)

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 **allowance considerations** may be applied before or after the package errors are determined.

To apply an **allowance consideration** 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 consideration**. 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 **allowance considerations** after individual package errors and average errors are determined.

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

This handbook provides "moisture **allowance considerations**" for some meat and poultry products, flour, pasta, and dry pet food. (see Chapter 2, Table 2-3. "Moisture **Allowance Considerations**") These **allowance consideration**s 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 consideration** or more information must be collected before deciding lot compliance or noncompliance.

Test Procedures for Packages Labeled by Weight – Gravimetric Testing

2.3. Basic Test Procedure for Gravimetric Testing of Net Weight

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 a moisture allowance **consideration**, follow the procedures under Section 2.3.8. "Moisture Allowance Considerations" to correct the MAV.

2.3.7.2. Average Requirement

4. Compliance Evaluation of the Average Error:

- 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 under "Moisture Allowance **Considerations**" in this chapter.

2.3.8. Moisture Allowances Considerations

When no predetermined allowance consideration is found in NIST Handbook 133, the potential for moisture loss must be considered. Inspectors should follow their jurisdiction's guidance for making their determination on an acceptable moisture allowance **consideration**.

If the product tested is subject to moisture loss, provide for the moisture allowance consideration by following one of the two procedures listed below.

2.3.8.1. Applying Moisture Loss before Determining Package Errors

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

Table 2-3. **Moisture** Allowance **Considerations**		
Verifying the labeled net weight of packages of:	**Moisture Allowance Consideration is:**	**Notes**
Wet Tare Only[1]		
Bacon, fresh sausage, and luncheon meats	0 %	For packages of bacon, fresh sausage, and luncheon meats, there is no moisture allowance **consideration** 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.
Notes: (1) There is no moisture allowance **consideration** 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 Allowance **Considerations**," free-flowing liquid and liquid absorbed by packaging materials in contact with the product are part of the wet tare.		

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

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

3. If the Moisture Allowance **Consideration** is known in advance (e.g., 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 **Consideration** 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 **Consideration** 27 g (0.06 lb) = Adjusted Nominal Gross Weight of 894 g (1.97 lb)*

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 **Consideration** 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 **Consideration** (e.g., 3 %) from the Nominal Gross Weight. That increases the individual package errors by the amount of the moisture allowance **consideration** (e.g., 3 %). If the value(s) of the MAV(s) were also adjusted it would result in doubling the allowance **consideration**. MAV is always based on the labeled net quantity.

This handbook provides "moisture allowance **consideration**s" for some meat and poultry products, flour, pasta products, and dry pet food. These allowance **consideration**s 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 **consideration** or further investigation can be conducted.

2.3.8.2. Applying Moisture Allowance Considerations after Determining Package Errors

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

1. Use the following approach to apply a Moisture Allowance **Consideration** to the Average Requirement after the test is completed:
   - the Moisture Allowance **Consideration** is computed;
2. To apply Moisture Allowance **Consideration** to the MAV(s) after the test, the following method is recommended:
   - compute Moisture Allowance **Consideration**;

2.3.8.3. Moisture Allowance Consideration 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 **consideration**" 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 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)

Date:	**Random Package Report**		**Sampling Plan:** ☐ **A** ☐ **B**	**Report Number:**
Location (name, address):	**Product/Brand Identity:**		**Manufacturer:**	**Container Descri**
	Lot Codes:			
1. Labeled Quantity: (Enter weight for each package in Column 1 below.)	**2. Unit of Measure:**	**3. MAV:** (Look up the MAV for each package with a minus error (−), convert it to dimensionless units and enter this value in the Box 4 column below.)	**5. Inspection Lot Size:**	**6. Sample Size (**
7. Initial Tare Sample Size:	**8. Number of MAVs Allowed:**	**9. Range of Package Errors (Rc):**	**10. Range of Tare Weights (Rt):**	**11. Rc/Rt :** (Box 9 ÷ Box 10 =)	**12. Total No. of Samples:**
13. Avg. Tare Wt: ☐ **Used Dry Tare** ☐ **Wet Tare** ☐ **Unused Dry Tare**			**13a.** ☐ **Tare Correction** ☐ **Moisture ~~Allowance~~ Consideration** ☐ **Not Applicable**	**14. Nominal Gro** (Labeled Wt + Box 1 13a =)

	Pkg 1	**Pkg 2**	**Pkg 3**	**Pkg 4**	**Pkg 5**	**Pkg 6**	**Pkg 7**	**Pkg 8**	**Pkg 9**	**Pk**
a. Gross Wt										
b. Tare Wt										
c. Net Wt										
d. Package Error										

Product Description, Lot Code, Unit Price	**Money Errors**		**Column 1 Labeled Net Weight**	**Package Errors**		**4. MA Dime l U**
	−	**+**		**−**	**+**	
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
			Totals			

15. Total Error:	**16. Number of unreasonable minus (−) errors:** (Compare each package error with the MAV in Column 4.)	**17. Is Box 16 greater than Box 8?** ☐ **Yes,** lot fails ☐ **No,** go to Box 18	**18. Avg. error in dimensionless units:** (Box 15 ÷ Box 6 =)	**19. Avg. error in labeled units:** (B Box 2 =)

20. Does Box 18 = zero (0) or Plus (+)? ☐ **Yes,** lot passes, go to Box 25 ☐ **No**, go to Box 21	**21. Compute Sample Standard Deviation:**	**22. Sample Correction Factor:**	**23. Compute Sample Error Limit: (Box 21 × Bo**

24. Disregarding the signs, is Box 18 larger than Box 23? ☐ **Yes,** lot fails, go to Box 25 ☐ **No,** lot passes, go to Box 25	**25. Disposition of Inspection Lot:** ☐ **Approved** ☐ **Rejected**
Comments:	**Official's Signature:** **Acknowledgement of Report:**

Date: *January 20, 2010*	**Random Package Report – Example**		**Sampling Plan:** ☑ **A** ☐ **B**	**Report Number:** 17
Location (name, address): *L&O Market MacCorkle Ave. Charleston, WV 25171*	**Product/Brand Identity:** *Ground Chuck* **Lot Codes:** *1, 19, 99*		**Manufacturer:** *Meat Dept. - L&O Market*	**Container Descri** *2S Tray w/soake plastic wrap*

1. Labeled Quantity: (Enter weight for each package in Column 1 below.)	2. Unit of Measure: *0.001 lb*	3. MAV: (Look up the MAV for each package with a minus error (−), convert it to dimensionless units and enter this value in the Box 4 column below.)	5. Inspection Lot Size: *23*	6. Sample Size (n *12*
7. Initial Tare Sample Size: *2*	**8. Number of MAVs Allowed:** *0*	**9. Range of Package Errors (Rc):** *10*	**10. Range of Tare Weights (Rt):** *1*	**11. Rc/Rt:** (Box 9 ÷ Box 10 =) *10*	**12. Total No. of Samples**: *2*

13. Avg. Tare Wt: *0.020 lb*

☑ **Used Dry Tare** ☐ **Wet Tare** ☐ **Unused Dry Tare**

13a. ☐ **Tare Correction** ☐ **Moisture ~~Allowance~~ Consideration** ☑ **Not Applicable**

14. Nominal Gro (Labeled Wt + Box 1 13a =) *Label Wt + (*

	Pkg 1	Pkg 2	Pkg 3	Pkg 4	Pkg 5	Pkg 6	Pkg 7	Pkg 8	Pkg 9	
a. Gross Wt	*1.852 lb*	*1.223 lb*								
b. Tare Wt	*0.020 lb*	*0.021 lb*								
c. Net Wt	*1.832 lb*	*1.202 lb*								
d. Package Error	*−18*	*−8*								

Product Description, Lot Code, Unit Price	Money Errors −	Money Errors +	Column 1 Labeled Net Weight	Package Errors −	Package Errors +	4. N Dir
1. *Ground Chuck – 1, 19, 99 – $1.79 per lb*			*1.85 lb*	*18*		
2.			*1.21 lb*	*7*		
3.			*1.56 lb*	*8*		
4.			*1.98 lb*	*14*		
5.	*$ 0.04*		*1.07 lb*	*23*		
6.			*1.55 lb*	*16*		
7.			*1.02 lb*	*2*		
8.	*$ 0.04*		*1.44 lb*	*25*		
9.			*1.33 lb*	*16*		
10.			*2.03 lb*	*20*		
11.			*1.73 lb*	*14*		
12.			*1.16 lb*	*11*		
13.						
14.						
15.						
16.						
			Totals	*−174*		

15. Total Error: *− 174*	16. Number of unreasonable minus (−) errors: (Compare each package error with the MAV in Column 4.) *0*	17. Is Box 16 greater than Box 8? ☐ **Yes,** lot fails ☑ **No,** go to Box 18	18. Avg. error in dimensionless units: (Box 15 ÷ Box 6 =) *− 14.5*	19. Avg. error in units: (Box 18 × *− 0.014*

20. Does Box 18 = Zero (0) or Plus (+)? ☐ **Yes,** lot passes, go to Box 25 ☑ **No,** go to Box 21	21. Compute Sample Standard Deviation: *6.721*	22. Sample Correction Factor: *0.635*	23. Compute Sample Error Limit: (Box 21 × Bo *4.267*

24. Disregarding the signs, is Box 18 larger than Box 23?

☑ **Yes**, lot fails, go to Box 25 ☐ **No**, lot passes, go to Box 25

25. Disposition of Inspection Lot:

☐ **Approved** ☑ **Rejected**

Comments

Official's Signature:

Acknowledgement of Report:

Date:	**Standard Package Report**		**Sampling Plan:** ☐ **A** ☐ **B**	**Report Nu**
Location (name, address):	**Product/Brand Identity:**		**Manufacturer:**	**Container Descriptio**
	Lot Codes:			

1. Labeled Quantity:	**2. Unit of Measure:**	**3. MAV:**	**4. MAV (dimensionless units):** (Box 3 ÷ Box 2 =)	**5. Inspection Lot Size:**	**6. Sample**
7. Initial Tare Sample Size:	**8. Number of MAVs Allowed:**	**9. Range of Package Errors (Rc):**	**10. Range of Tare Weights (Rt):**	**11. Rc/Rt:** (Box 9 ÷ 10 =)	**12. Total Tare Sam**

13. Average Tare Wt: ☐ **Used Dry Tare** ☐ **Wet Tare** ☐ **Unused Dry Tare**	**13a.** ☐ **Tare Correction** ☐ **Moisture ~~Allowance~~ Consideration** ☐ **Vacuum Pack** ☐ **Not Applicable**	**14. Nominal Gross Wt:** (Box 1 + Box 13 − Box 13a =)

	Pkg 1	**Pkg 2**	**Pkg 3**	**Pkg 4**	**Pkg 5**	**Pkg 6**	**Pkg 7**	**Pkg 8**	**Pkg 9**
a. Gross Wt									
b. Tare Wt									
c. Net Wt									
d. Package Error									

−	+	−	+	−	+	−	
1.		13.		25.		37.	
2.		14.		26.		38.	
3.		15.		27.		39.	
4.		16.		28.		40.	
5.		17.		29.		41.	
6.		18.		30.		42.	
7.		19.		31.		43.	
8.		20.		32.		44.	
9.		21.		33.		45.	
10.		22.		34.		46.	
11.		23.		35.		47.	
12.		24.		36.		48.	
Total:	**Total:**	**Total:**	**Total:**	**Total:**	**Total:**	**Total:**	**Total**

15. Total Error:	**16. Number of unreasonable minus (−) errors (compare each package error with Box 4):**	**17. Is Box 16 greater than Box 8?** ☐ Yes, lot fails ☐ No, go to Box 18	**18. Average error in dimensionless units:** (Box 15 ÷ Box 6 =)	**19. Averag labeled uni** (Box 18 × E

20. Does Box 18 = Zero (0) or Plus (+)? ☐ **Yes,** lot passes, go to Box 25 ☐ **No,** go to Box 21	**21. Compute Sample Standard Deviation:**	**22. Sample Correction Factor:**	**23. Compute Sample Error Limit:** (Box 21 × Box 22 =)

24. Disregarding the signs, is Box 18 larger than Box 23? ☐ **Yes,** lot fails, go to Box 25 ☐ **No,** lot passes, go to Box 25	**25. Disposition of Inspection Lot:** ☐ **Approved** ☐ **Rejected**
Comments:	**Official's Signature**: **Acknowledgement of Report:**

Date: *January 20, 2010*	**Standard Package Report – Example**	**Sampling Plan:** ☑ **A** ☐ **B**	**Report Nu**

Location (name, address):	**Product/Brand Identity:**	**Manufacturer:**	**Container Descriptio**
Volunteer Market *18765 Alcoa Highway* *Knoxville, TN 37920*	*Community Group Cookies (Thin Mints)* **Lot Codes:** *April 2009 A & B*	*ABC Cookies Inc.* *1069 Capitol Avenue* *Nashville, TN 37204*	*Cardboc* *Plastic I*

1. Labeled Quantity:	**2. Unit of Measure:**	**3. MAV:**	**4. MAV (dimensionless units):** (Box 3 ÷ Box 2 =)	**5. Inspection Lot Size:**	**6. Sample**
453 g (1 lb)	*0.001 lb*	*0.044 lb*	*44*	*172*	

7. Initial Tare Sample Size:	**8. Number of MAVs Allowed:**	**9. Range of Package Errors (Rc):**	**10. Range of Tare Weights (Rt):**	**11. Rc/Rt:** (Box 9 ÷ 10 =)	**12. Total Tare Sam**
2	*0*	*24*	*2*	*12*	

13. Average Tare Wt:	**13a.** ☐ **Tare Correction**	**14. Nominal Gross Wt:** (Box 1 + Box13 − Box 13a =)
0.014 lb	☐ **Moisture ~~Allowance~~ Consideration**	*1.014 lb*
☑ **Used Dry Tare** ☐ **Wet Tare** ☐ **Unused Dry Tare**	☐ **Vacuum Pack** ☑ **Not Applicable**	

	Pkg 1	**Pkg 2**	**Pkg 3**	**Pkg 4**	**Pkg 5**	**Pkg 6**	**Pkg 7**	**Pkg 8**	**Pkg 9**
a. Gross Wt	*1.052 lb*	*1.026 lb*							
b. Tare Wt	*0.015 lb*	*0.013 lb*							
c. Net Wt	*1.037 lb*	*1.013 lb*							
d. Package Error	*37*	*13*							

–	+	–	+	–	+	–	
1.	*38*	13.		25.		37.	
2.	*12*	14.		26.		38.	
3.	*8*	15.		27.		39.	
4.	*4*	16.		28.		40.	
5. *3*		17.		29.		41.	
6. *2*		18.		30.		42.	
7.	*12*	19.		31.		43.	
8. *3*		20.		32.		44.	
9.	*4*	21.		33.		45.	
10. *1*		22.		34.		46.	
11. *0*		23.		35.		47.	
12.	*6*	24.		36.		48.	
Total: *9*	**Total:** *84*	**Total:**	**Total:**	**Total:**	**Total:**	**Total:**	**Total**

15. Total Error:	**16. Number of unreasonable minus (−) errors (compare each package error with Box 4):**	**17. Is Box 16 greater than Box 8?**	**18. Average error in dimensionless units:** (Box 15 ÷ Box 6 =)	**19. Averag labeled uni** (Box 18 × E
+ 75	*0*	☐ **Yes,** lot fails ☑ **No,** go to Box 18	*+ 6.25*	*+ 0.0*

20. Does Box 18 = Zero (0) or Plus (+)?	**21. Compute Sample Standard Deviation:**	**22. Sample Correction Factor:**	**23. Compute Sample Error Limit:** (Box 21 × Box 22 =)
☑ **Yes,** lot passes, go to Box 25 ☐ **No,** go to Box 21			

24. Disregarding the signs, is Box 18 larger than Box 23?	**25. Disposition of Inspection Lot:**
☐ **Yes**, lot fails, go to Box 25 ☐ **No,** lot passes, go to Box 25	☑ **Approved** ☐ **Rejected**

Comments:	**Official's Signature:**
Lot Passes	**Acknowledgement of Report:**

Index

STRUCTURAL PLYWOOD SHEETS AND WOOD-BASED STRUCTURAL PANELS WORKSHEET						
Section 5. Determine Moisture Shrinkage ~~Allowance~~ Consideration If the average error for any dimension (thickness, length, width) is a minus value, or if the MAV is exceeded for any piece, perform a moisture test on each piece to determine if a shrinkage **~~allowance~~ consideration** should be applied. Apply the appropriate **~~allowance~~ consideration** to each piece, then re-calculate the average error and re-determine compliance with the MAV.						
Piece Number	**Moisture Content**	**Moisture Shrinkage ~~Allowance~~ Consideration**		**Piece Number**	**Moisture Content**	**Moisture Shrinkage ~~Allowance~~ Consideration**

Appendix F. Glossary

M

moisture ~~allowance~~consideration. That variation in weight of a packaged product permitted in order to account for loss of weight due to loss of moisture during good package distribution practices. For packaged goods subject to moisture loss, when the average net weight of a sample is found between the labeled weight and the boundary of the moisture **~~allowance~~consideration**, the lot is said to be in a no-decision area. Further information is required to determine lot compliance or noncompliance.

G

M

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~~**considerations**, if applicable.

NIST OWM Detailed Technical Analysis:

It seems the item was developed using a "search and find"/" cut and paste" feature. A well-thought-out, line-by-line, detailed review and analysis should take place of the over 50-plus changes spanning six different sections of Handbook 133 being made to ensure that changes to words do not change the context. The ramifications and considerations in applying, allowing, and /or requesting moisture allowance, along with the NCWM Policy Interpretations, Guidelines in Handbook 130 2.5.6, need to be fully considered when recognizing gray area considerations

Moisture allowance has been recently discussed in various aspects within the NCWM. NIST OWM believes this should assigned, and the Moisture Allowance Task Group should be reinstated to address the concerns and considerations of this item.

Several sections in NIST Handbook 133 have been omitted in Pub 16. These omissions consist of the Glossary, Index, and forms, which have not been updated to reflect the new language change.

- In NIST Handbook 133 Section 2.3.8, NIST OWM proposes a language change shown below.

  2.3.8. Moisture Allowances

  When no predetermined ~~allowance~~ **valuation for the specific commodities** ~~is~~ found in NIST Handbook 133, **Table 2-3 Moisture Allowance**, the potential for moisture loss **or Gray area** must be considered. Inspectors should follow their jurisdiction's guidance for making their determination on an acceptable moisture allowance **consideration**.

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

- Appendix F. Glossary in Handbook 133 is missing the language change in Pub 16, as well as the Index
- On page 70, line 38, under example, within Pub 16 of the L&R Report, the word "consideration" should not follow the Maximum Allowable Variation. MAVs are not a consideration.
- On page 71, lines 7 and 14, the parenthetical language "Amended 2010 & 2014," respectively, should not be stricken.
- The parenthetical language Amended 2002 in the newly moved paragraph to the item should remain, with the added 20XX included for (if/when) adoption.

OWM believes it is necessary to retain the word "Allowance". Adding the word "Consideration" to "Moisture Allowance" enhances the language, therefore giving the user the proper terminology. The user

would "Consider" "Applying" Moisture "to the product in question. NIST OWM recommends the language remain the same and add "consideration to the end of Moisture Allowance. It would then read: Moisture Allowance Consideration".

NIST OWM recommends no changes to the "moisture allowance" consideration in the lumber section of Handbook 133 Sections 4.10 and 4.11, as these are defined and have been supported by data. Lumber and wood panels are referenced in the National Production Standards PS1, PS2, and PS20. This is part of the industry's assurance procedures. This recommendation is highly supported by Christie Cordova, Georgia-Pacific Wood Products.

Summary of Discussions:

This item was introduced during the 2025 meeting cycle and has not been considered during an NCWM Interim or Annual Meeting.

Regional Associations:

Western Weights and Measures

At the September 2024 WWMA Annual Meeting, Matt Douglas (Division of Measurement Standards – CA) recommended withdrawal as it is a training and education issue.

Aaron Yanker (Department of Agriculture – CO) echoed Mr. Douglas statements and he also states that the application of moisture loss allowance is already clarified within the handbook. In addition, he said that the word "consideration" was more ambiguous.

Kurt Floren (County of Los Angeles – CA) suggested the following changes:

(1) L&R 128 line 14: The word "consideration" must be underlined in the proposal

(2) L&R 130 line 8: "allowance" must be struck-through, and "consideration" must be underlined

(3) The sections under 4.10.2.2. must be renumbered.

(4) The sections under 4.11.2.2. must be renumbered.

He also suggests excluding section 4.10. Structural Plywood and Wood-Based Structural Panels and section 4.11. Softwood Lumber, because these items have a built-in moisture testing requirement that would mandate an allowance for moisture.

Mr. Floren supports this item because for decades the moisture loss provisions have been misconstrued. When a commodity fails within the moisture loss gray area, it is the weights and measures official's duty to consider whether moisture loss was a factor in the net weight. He said this is explicitly stated in handbook 133, Appendix F.

Jose Arriaga (County of Orange – CA) stated the term "consideration" is not the right word as it is too vague. He suggests the word "allowance" instead be replaced by the phrase "consideration for allowance".

Steven Harrington (Department of Agriculture – OR) initially was not in support of this item, however, after hearing other testimony rose again to voice support of the item.

The WWMA L&R Committee sees merit in this proposal, however, the proposal should be further developed by the submitter based on the comments heard during Open Hearing. Therefore, the WWMA L&R recommends this item as developing.

Southern Weights and Measures

At the October 2024 SWMA Annual Meeting**,** based on the comments heard from the floor the committee recommends this item to be assigned a Developing status with the recommendation that the submitter address the definition of "consideration" and address the removal of "moisture allowance" from the definitions in the handbook. Based on comments the committee suggests that submitter address the potential conflicts with other industry standards with sections 4.10.2.2. and 4.11.2.1.

Christie Cordova, Georgia-Pacific Wood Products

In 2019, when wood panels and lumber were added to HB 133, we worked with NIST to reference our national production standards PS1, PS2 and PS20. Those standards outline acceptable moisture tolerances and were the basis for the current calculations in the handbook. Our regulatory agencies, APA and SPIB/ALSC, monitor and test for moisture as part of our quality assurance programs.

The test procedures in Section 4.10 and 4.11 require the moisture to be tested first and then a moisture allowance applied. The calculations listed in those sections as well in Tables 4-1 for plywood, 4-2 for OSB, 4-3 for dry lumber and 4-4 for green lumber are based on years of wood science data which we can provide for the committee.

We would ask that Sections 4.10 and 4.11 remain with the current language of moisture allowance and not changed to a "consideration".

Mark Lovisa, State of Louisiana, stated that Louisiana supports this item and believes that using "consideration" instead of "allowance" makes the section clearer and more accurate. He further stated that "allowance" implies that it is intended where "consideration" gives the option to take into account other factors that may affect moisture loss.

Northeastern Weights and Measures

At the 2025 NEWMA Annual Meeting in Burlington VT, Steve Timar, New York – Originally opposed the proposal, but now supports the proposal.

Jason Flint, New Jersey – Agrees with New York State and supports the proposal.

Cheryl Ayers, New Hampshire – Agrees with New York State.

All the comments above on B4: POL-25.1 were made prior to the proposed language change documented below in B4: NET-25.1

The NEWMA L&R Committee has considered the proposed changes by Vermont for B4: NET-25.1 and made the necessary change to the B4 proposal for further consideration by NCWM L&R Committee. Based on these new changes the NEWMA L&R Committee recommends downgrading this proposal to Informational status for further consideration:

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 **consideration for moisture loss** ~~moisture allowances~~ **~~considerations~~**, if applicable

Steve Timar, New York – Same comments as POL-25.1.

Scott Dolan, Vermont – Proposes that the language "Moisture Allowance Consideration" should be changed to "Consideration for Moisture Loss".

Cheryl Ayer, New Hampshire – Agrees with Vermont language.

Jason Flint, New Jersey – Does not disagree, that the Vermont's language is clearer. But the forms may need to be looked at to see if Vermont's language would work in all instances. But the ramifications may be greater. "Allowances", in some instances should be singular not plural in the proposal.

John McGuire, NIST OWM – Definitions (within the Section F. Glossary) are missing from the original proposal.

The NEWMA L&R Committee has considered the proposed changes by Vermont and made the necessary changes to the proposal for further consideration by the NCWM L&R Committee. Based on these new changes, the NEWMA L&R Committee recommends downgrading this proposal to Informational status for further consideration:

TABLE OF CONTENTS

1.2.6.1. Applying **Consideration for Moisture Loss**~~a Moisture Allowance~~

Test procedures for flour, some meat, and poultry are based on the concept of a "~~moisture allowance consideration~~consideration for moisture loss" also known as a "gray area" or "no decision" area (see Section 2.3.8. "~~Moisture Allowances Considerations~~" "Consideration for Moisture Loss"). 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 consideration~~" "Consideration for Moisture Loss" or "gray area."

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 **consideration for moisture loss** ~~moisture allowances~~ **~~considerations~~** may be applied before or after the package errors are determined.

To apply a~~n~~ **consideration for moisture loss** ~~allowance~~ **~~consideration~~** 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 **consideration for moisture loss** ~~moisture allowance~~ **~~consideration~~**. This approach is used to account for moisture loss in both the average and individual package errors.

It is also permissible to apply the **consideration for moisture loss** ~~moisture allowances~~ ~~**considerations**~~ 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 ~~***Consideration***~~ *(MAV) permitted for the package's labeled quantity).*

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 **consideration for moisture loss** ~~moisture allowance~~ ~~**consideration**~~ 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 "**consideration for moisture loss** ~~moisture allowances~~ ~~**considerations**~~" 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. "**Consideration for Moisture Loss"** **"**~~Moisture Allowances~~ ~~**considerations**~~") 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 consideration 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 2010. 2024 **and 20XX**)

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 moisture allowance consideration, follow the procedures under Section 2.3.8. "Moisture Allowances" to correct the MAV.**2.3.7.1. Maximum Allowable Variation (MAV) Requirement**

Compare each minus package error with the MAV recorded in Box 3 or Box 4 (if using dimensionless units). Circle the package errors that exceed the MAV. These are "Unreasonable Minus Errors." Record the number of unreasonable minus errors found in the sample in Box 16.

Compare the number in Box 16 with the number of unreasonable errors allowed (recorded in Box 8). If the number found exceeds the allowed number, the lot fails. Record in Box 17 whether the number of unreasonable errors found is less or more than allowed.

Note: If a total quantity declaration on a multiunit or variety package is being verified, and the MAV applied is not based on a percent of the labeled quantity (see Section 1.2.4.1. "Total Quantity MAV for Multiunit and Variety Packages).

(Note Added 2022)

2.3.7.2. Average Requirement

4. Compliance Evaluation of the Average Error:

- 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 under "**Consideration for Moisture Loss" "**~~Moisture Allowances **Considerations**~~" in this chapter.

(Amended 2018, 2022 and 20XX)

2.3.8. Moisture Allowances

When no predetermined allowance is found in NIST Handbook 133, the potential for moisture loss must be considered. Inspectors should follow their jurisdiction's guidance for making their determination on an acceptable **consideration for moisture loss** ~~moisture allowance~~ ~~**consideration**~~.

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

If the product tested is subject to moisture loss, provide for the moisture allowance by following one of the two procedures listed below.

2.3.8.1 Applying Moisture Loss before Determining Package Errors

Determine the percent value of the moisture allowance if the product is listed below**Error! Bookmark not defined.**. (see Table 2-3. "**Consideration for Moisture Loss" "**~~Moisture Allowances **Considerations**~~.")

Table 2-3.
Consideration for Moisture Loss ~~Moisture Allowances Considerations~~

Verifying the labeled net weight of packages of:	**~~Moisture Allowance Consideration is:~~ Consideration for Moisture Loss:**	**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] Error! Bookmark not defined.		
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 **consideration for moisture loss** ~~moisture allowance consideration~~ 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 **consideration for moisture loss** ~~moisture allowance~~ **consideration** 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. "**Consideration for Moisture Loss"** ~~"Moisture Allowances Considerations~~," 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 20XX**)

To compute **consideration for moisture loss** ~~moisture allowance~~ ~~**consideration**~~, 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)
Consideration for Moisture Loss *~~Moisture Allowance~~* ~~***Consideration***~~ *is 3 % (0.03)*

Consideration for Moisture Loss ~~*Moisture Allowance* ***Consideration***~~ *= 907 g (2 lb) × 0.03 = 27 g (0.06 lb)*

If the **Consideration for Moisture Loss** ~~Moisture Allowance **Consideration**~~ is known in advance (e.g., 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 **Consideration for Moisture Loss** ~~Moisture Allowance **Consideration**~~ 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) – ***Consideration for Moisture Loss*** ~~*Moisture Allowance* ***Consideration***~~ *27 g (0.06 lb) = Adjusted Nominal Gross Weight of 894 g (1.97 lb)*

This result is entered in Box 14.

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 **Consideration for Moisture Loss** ~~Moisture Allowance **Consideration**~~ 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 **Consideration for Moisture Loss** ~~Moisture Allowance **Consideration**~~ (e.g., 3 %) from the Nominal Gross Weight. That increases the individual package errors by the amount of the **consideration for moisture loss** ~~moisture allowance **consideration**~~ (e.g., 3 %). If the value(s) of the MAV(s) were also adjusted it would result in doubling the **consideration for moisture loss** ~~allowance **consideration**~~. MAV is always based on the labeled net quantity.

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

2.3.8.2. Applying Moisture Allowance after Determining Package Errors

Adjustments can be made when the value of the **Consideration for Moisture Loss** ~~Moisture Allowance **Consideration**~~ is determined following the test (e.g., after the sample fails or if a packer provides reasonable **consideration for moisture loss** ~~moisture allowance **consideration**~~ 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.

- Use the following approach to apply a **Consideration for Moisture Loss** ~~Moisture Allowance **Consideration**~~ to the Average Requirement after the test is completed:

  the **Consideration for Moisture Loss** ~~Moisture Allowance **Consideration**~~ is computed;

- To apply **Consideration for Moisture Loss** ~~Moisture Allowance **Consideration**~~ to the MAV(s) after the test, the following method is recommended:

  compute **Consideration for Moisture Loss** ~~Moisture Allowance **Consideration**~~;

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

Consideration for Moisture Loss ~~**Moisture Allowance Consideration**~~ **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 **"consideration for moisture loss"** ~~moisture allowance **consideration**~~" 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:

This handbook provides **"consideration for moisture loss"** ~~"moisture allowances **considerations**"~~ 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 **consideration for moisture loss** ~~moisture allowance **consideration**~~ or further investigation can be conducted.

Appendix F. Glossary

M

Consideration for moisture loss ~~**moisture allowance consideration**~~**.** That variation in weight of a packaged product permitted in order to account for loss of weight due to loss of moisture during good package distribution practices. For packaged goods subject to moisture loss, when the average net weight of a sample is found between the labeled weight and the boundary of the **consideration for moisture loss** ~~moisture **allowance consideration**~~, **consideration for moisture loss** lot is said to be in a no-decision area. Further information is required to determine lot compliance or noncompliance.

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G

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NIST Handbook 130

VI. NCWM Policy, Interpretations, and Guidelines

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 **considerations for moisture loss** ~~moisture allowances considerations~~, if applicable.

Date:	**Random Package Report**							Sampling Plan: ☐ A ☐ B		Report Number:
Location (name, address):		Product/Brand Identity:						Manufacturer:		Container Descri
		Lot Codes:								
1. Labeled Quantity: (Enter weight for each package in Column 1 below.)	2. Unit of Measure:	3. MAV: (Look up the MAV for each package with a minus error (−), convert it to dimensionless units and enter this value in the Box 4 column below.)					5. Inspection Lot Size:			6. Sample Size (
7. Initial Tare Sample Size:	8. Number of MAVs Allowed:	9. Range of Package Errors (Rc):		10. Range of Tare Weights (Rt):			11. Rc/Rt : (Box 9 ÷ Box 10 =)			12. Total No. of Samples:
13. Avg. Tare Wt: ☐ Used Dry Tare ☐ Wet Tare ☐ Unused Dry Tare				13a. ☐ Tare Correction ☐ Consideration for Moisture Loss~~Moisture Allowance Consideration~~ ☐ Not Applicable						14. Nominal Gro (Labeled Wt + Box 13a =)

	Pkg 1	Pkg 2	Pkg 3	Pkg 4	Pkg 5	Pkg 6	Pkg 7	Pkg 8	Pkg 9	Pk
a. Gross Wt										
b. Tare Wt										
c. Net Wt										
d. Package Error										

Product Description, Lot Code, Unit Price	Money Errors		Column 1 Labeled Net Weight	Package Errors		4. MA Dime I U
	−	+		−	+	
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8						

Date: *January 20, 2010*	**Random Package Report – Example**		**Sampling Plan:** ☑ **A** ☐ **B**	**Report Number:** 17
Location (name, address): *L&O Market* *MacCorkle Ave. Charleston, WV 25171*	**Product/Brand Identity:** *Ground Chuck* **Lot Codes:** *1, 19, 99*		**Manufacturer:** *Meat Dept. – L&O Market*	**Container Descr** *2S Tray w/soake plastic wrap*

1. Labeled Quantity: (Enter weight for each package in Column 1 below.)	**2. Unit of Measure:** *0.001 lb*	**3. MAV:** (Look up the MAV for each package with a minus error (−), convert it to dimensionless units and enter this value in the Box 4 column below.)	**5. Inspection Lot Size:** *23*	**6. Sample Size (** *12*

7. Initial Tare Sample Size: *2*	**8. Number of MAVs Allowed:** *0*	**9. Range of Package Errors (Rc):** *10*	**10. Range of Tare Weights (Rt):** *1*	**11. Rc/Rt:** (Box 9 ÷ Box 10 =) *10*	**12. Total No. of Samples**: *2*

13. Avg. Tare Wt: *0.020 lb* ☐ **Wet Tare** ☐ **Unused Dry Tare** ☑ **Used Dry Tare**	**13a.** ☐ **Tare Correction** ⊟ **Consideration for Moisture Loss ~~Moisture Allowance~~ ~~Consideration~~** ☑ **Not Applicable**	**14. Nominal Grc** (Labeled Wt + Box 13a =) *Label Wt + 0*

	Pkg 1	**Pkg 2**	**Pkg 3**	**Pkg 4**	**Pkg 5**	**Pkg 6**	**Pkg 7**	**Pkg 8**	**Pkg 9**	
a. Gross Wt	*1.852 lb*	*1.223 lb*								
b. Tare Wt	*0.020 lb*	*0.021 lb*								
c. Net Wt	*1.832 lb*	*1.202 lb*								
d. Package Error	*−18*	*−8*								

Product Description, Lot Code, Unit Price	**Money Errors**		**Column 1 Labeled Net Weight**	**Package Errors**		**4. Di**
	−	**+**		**−**	**+**	
1. *Ground Chuck – 1, 19, 99 – $1.79 per lb*			*1.85 lb*	*18*		
2.			*1.21 lb*	*7*		
3.			*1.56 lb*	*8*		
4.			*1.98 lb*	*14*		
5.	*$ 0.04*		*1.07 lb*	*23*		

Date:	**Standard Package Report**		Sampling Plan: ☐ A ☐ B	Report N
Location (name, address):		Product/Brand Identity: Lot Codes:	Manufacturer:	Containe Descripti

1. Labeled Quantity:	2. Unit of Measure:	3. MAV:	4. MAV (dimensionless units): (Box 3 ÷ Box 2 =)	5. Inspection Lot Size:	6. Sampl
7. Initial Tare Sample Size:	8. Number of MAVs Allowed:	9. Range of Package Errors (Rc):	10. Range of Tare Weights (Rt):	11. Rc/Rt: (Box 9 ÷ 10 =)	12. Total Tare Sam

13. Average Tare Wt: ☐ Used Dry Tare ☐ Wet Tare ☐ Unused Dry Tare	13a. ☐ Tare Correction ☐ Consideration for Moisture Loss~~Moisture Allowance Consideration~~ ☐ Vacuum Pack ☐ Not Applicable	14. Nominal Gross Wt: (Box 1 + Box 13 − Box 13a =)

	Pkg 1	Pkg 2	Pkg 3	Pkg 4	Pkg 5	Pkg 6	Pkg 7	Pkg 8	Pkg 9
a. Gross Wt									
b. Tare Wt									
c. Net Wt									
d. Package Error									

−	+	−	+	−	+	−	
1.		13.		25.		37.	
2.		14.		26.		38.	
3.		15.		27.		39.	
4.		16.		28.		40.	
5.		17.		29.		41.	
6.		18.		30.		42.	
7.		19.		31.		43.	

Date: *January 20, 2010*	**Standard Package Report – Example**	☑ **A** ☐ **B** **Sampling Plan:**	**Report N**

Location (name, address):	**Product/Brand Identity:**	**Manufacturer:**	**Containe Descripti**
Volunteer Market *18765 Alcoa Highway* *Knoxville, TN 37920*	*Community Group Cookies (Thin Mints)* **Lot Codes:** *April 2009 A & B*	*ABC Cookies Inc.* *1069 Capitol Avenue* *Nashville, TN 37204*	*Cardbo Plastic*

1. Labeled Quantity:	**2. Unit of Measure:**	**3. MAV:**	**4. MAV (dimensionless units):**	**5. Inspection Lot Size:**	**6. Sampl**
453 g (1 lb)	*0.001 lb*	*0.044 lb*	(Box 3 ÷ Box 2 =) *44*	*172*	

7. Initial Tare Sample Size:	**8. Number of MAVs Allowed:**	**9. Range of Package Errors (Rc):**	**10. Range of Tare Weights (Rt):**	**11. Rc/Rt:**	**12. Tota Tare Sam**
2	*0*	*24*	*2*	(Box 9 ÷ 10 =) *12*	

13. Average Tare Wt:	**13a.** ☐ **Tare Correction**	**14. Nominal Gross Wt:**
0.014 lb ☑ **Used Dry Tare** ☐ **Wet Tare** ☐ **Unused Dry Tare**	☐ **Consideration for Moisture Loss~~Moisture Allowance Consideration~~** ☐ **Vacuum Pack** ☑ **Not Applicable**	(Box 1 + Box13 − Box 13a =) *1.014 lb*

	Pkg 1	**Pkg 2**	**Pkg 3**	**Pkg 4**	**Pkg 5**	**Pkg 6**	**Pkg 7**	**Pkg 8**	**Pkg 9**
a. Gross Wt	*1.052 lb*	*1.026 lb*							
b. Tare Wt	*0.015 lb*	*0.013 lb*							
c. Net Wt	*1.037 lb*	*1.013 lb*							
d. Package Error	*37*	*13*							

−	+	−	+	−	+	−	
1.	*38*	13.		25.		37.	
2.	*12*	14.		26.		38.	

At the October 2024 NEWMA Interim Meeting, Jason Flint, New Jersey – Stated he is not opposed to the wording change but believes the word "consideration" or grey area needs to be more defined. NJ recommends developing and to be assigned to a new Moisture Allowance/Consideration Task Group.

Marc Parquette, NCWM Chair, Vermont – Agrees with New Jersey, and stated this is larger than just the Cannabis Task Group and recommends the item be developing.

Cheryl Ayer, New Hampshire – Agrees with the previous comments, and agrees the item should be developing.

Steve Timar, New York – concurs with previous, concerned about the 3% moisture loss. Not everything should be changed to moisture considerations in reference to Table 2. Not everything should be changed from allowance to considerations.

Jim Willis, New York – agrees it's a worthwhile endeavor, and recommends the item be developing.

Central Weights and Measures

At the May 2025 CWMA Annual meeting, Loren Minnich, NIST OWM, had concerns with outdated terms. They have not been updated consistently. He has several examples. NIST OWM supports the item, but requests it be downgraded to informational to review and ensure every part has been addressed for the Block. Ivan Hankins, Iowa, agrees with NIST and recommends informational.

The Committee recommends that the Block be downgraded to Developing. The committee also recommends that the developer review the item to address NIST's concerns about consistency in updating the terms and clarify whether this is an allowance or a consideration.

At the October 2024 CWMA Interim Meeting**,** Daniel Walker, OH, supports this item and recommends a Voting status. Ron DePouw, WI, supports this item.

References

[1] NIST OWM Analysis and Executive reports **https://www.nist.gov/pml/weights-and-measures/publications/owm-technical-analysis**

[2] National Conference on Weights and Measures Publication 15 (2023) and 16 (2023) **https://www.ncwm.com/**

[3] 1905-2021 NCWM Annual Conference reports **https://www.nist.gov/pml/weights-and-measures/publications/ncwm-annual-reports**

Appendix A. Supplemental Documents

Presentation by the National Propane Gas Association