

**NIST Office of Weights and Measures (OWM) Analysis
Laws and Regulations (L&R)
2022 NCWM Annual Meeting Agenda**

The NIST OWM Analysis is submitted to assist the Weights and Measures community as it deliberates on items before the Conference. OWM offers these comments and recommendations based upon information and input available as of the date of this report.

Language shown in bold face print by ~~striking out~~ information to be deleted and underlining information to be added. Requirements that are proposed to be nonretroactive are printed in ***bold faced italics***.

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Subject Series List for the Laws and Regulations Committee

Handbook 130 – General.....	GEN Series
Uniform Laws	
Uniform Weights and Measures Law	WAM Series
Uniform Weighmaster Law	WMR Series
Uniform Fuels and Automotive Lubricants Inspection Law	FLL Series
Uniform Regulations	
Uniform Packaging and Labeling Regulation	PAL Series
Uniform Regulation for the Method of Sale of Commodities.....	MOS Series
Uniform Unit Pricing Regulation	UPR Series
Uniform Regulation for the Voluntary Registration of Servicepersons and Service Agencies for Commercial Weighing and Measuring Devices	RSA Series
Uniform Regulation for National Type Evaluation.....	NTP Series
Uniform Fuels and Automotive Lubricants Regulation	FLR Series
Examination Procedure for Price Verification.....	PPV Series
NCWM Policy, Interpretations, and Guidelines	POL Series
Handbook 133	NET Series
Other Items	OTH Series

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Table 1. Acronyms and Glossary	
ASTM	ASTM International (formerly known as American Society for Testing and Materials) is an international standards organization that develops and publishes voluntary consensus technical standards for a wide range of materials, products, systems, and services.
API	American Petroleum Institute is a national trade association that represents all aspects of America's oil and natural gas industry.
CFR	Code of Federal Regulations is the codification of the general and permanent regulations published in the Federal Register by the executive departments and agencies of the federal government of the United States.
CWMA	Central Weights and Measures Association consists of the following member states: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
FALS	Fuels and Lubricants Subcommittee works under direction of the L&R on the development of agenda items that pertain to Fuels issues within NIST HB 130.
FDA	Food and Drug Administration
FTC	Federal Trade Commission is an independent agency of the United States government whose principal mission is the enforcement of civil U.S. antitrust law and the promotion of consumer protection.
HB	Handbook
ILMA	Independent Lubricant Manufacturers Association
L&R	Laws and Regulations is a standing Committee within NCWM
LPG	Liquefied Petroleum Gas
MAV	Maximum Allowable Variation is a deficiency in the weight, measure, or count of an individual package beyond which the deficiency is considered to be an “unreasonable error”. The number of packages with deficiencies that are greater than the MAV is controlled by the sampling procedure.
NEWMA	Northeastern Weights and Measures Association consist of the following States, Commonwealths, or any political subdivision thereof: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Puerto Rico, Rhode Island, and Vermont.
NIST	National Institute of Standards and Technology is a physical sciences laboratory and non-regulatory agency of the United States Department of Commerce. Its mission is to promote American innovation and industrial competitiveness
NCWM	National Conference on Weights and Measures is a is a professional non-profit association of state and local weights and measures officials, federal agencies, manufacturers, retailers, and consumers.
OWM	Office of Weights and Measures collaborates with state weights and measures programs, industry, and national standards development organizations and associations in the development of U.S. standards in the form of uniform laws, regulations, and methods of practice. OWM serves as the U.S. representative to the International Organization of Legal Metrology (OIML) to bring efficiency and cost savings to U.S. manufacturers and other stakeholders doing business overseas, through the promotion of harmonized international standards and regulatory practices.

PALS	Packaging and Labeling Subcommittee that works under direction of the L&R on the development of agenda items that pertain to packaging and labeling within NIST HB 130.
S&T	Specifications and Tolerances is a standing Committee within NCWM.
SAE	SAE International (formerly named the Society of Automotive Engineers) is a U.S. based, globally active professional association and standards developing organization for engineering professionals in various industries.
SWMA	Southern Weights and Measures Association is comprised of the following member states/territory: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, U.S. Virgin Islands, Virginia, and West Virginia.
UPLR	Uniform Packaging and Labeling Regulation
USDA - FSIS	U.S. Department of Agriculture – Food Safety and Inspection Service is the public health regulatory agency responsible for ensuring that United States' commercial supply of meat, poultry, and egg products is safe, wholesome, and correctly labeled and package.
USNWG	U.S. National Work Group
WWMA	Western Weights and Measures Association is comprised of the following States: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Table 2. Reporting Structure	
Source:	Name and affiliation of submitter.
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 3. Summary of Recommendations	
Item under Consideration	– The latest language that the Committee has moved forward as the Item membership is considering
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	– Taken directly from the Regional Association Meeting finalized report. ◆ Each region will be identified separately. ◆ The meetings 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.

Details of All Items
(In order by Reference Key)

WAM – UNIFORM WEIGHTS AND MEASURES LAW

WAM-22.2 V Section 11. Powers and Duties of the Director

(NOTE: This language was provided in the Fall 2021 OWM Technical Analysis for Block 3 Cannabis Items. NEWMA extracted this Item and created a new standalone for WAM-22.2.)

Source: Northeastern Weights and Measures Association

Purpose and Justification:

Many of the states' weights and measures laws may not give the state director authority to regulate the types of Cannabis labeling. Amended language will be required to the Uniform Weights and Measures Law to add the needed authority.

OWM Executive Summary for WAM-22.2. Section 11. Powers and Duties of the Director

OWM Recommendation: OWM recommends this be Assigned to the Cannabis Task Group to obtain additional information which OWM has recommended in the analysis.

“Cannabis” Statement:

In contrast to hemp, marijuana remains a Schedule I substance under the Controlled Substances Act. NIST does not have a policy role related to the production, sale, distribution, or use of cannabis (including hemp and marijuana). NIST participates in the National Conference of Weights and Measures (NCWM) as part of NIST's statutory mission to promote uniformity in state laws, regulations, and testing procedures.

- NCWM Bylaws for procedures to modify or add requirements to an existing publication, states “provide evidence of consistency with federal laws and regulations.” Cannabis is a Schedule I substance under the Controlled Substances Act. Schedule 1 substances are considered illegal under federal law.
- This regulation is written for permissive language in a regulation. Section 11. Powers and Duties of the Directors is authoritative, and we recommend the permissive language be removed replaced with language similar to “For those states that have authority to regulate Cannabis and Cannabis-containing Products the Director shall...” In addition, the formatting would align with the formatting but continuing with next alphabetical character.
- If states want to have authority consideration should be given to add a provision to the uniform code and restrict water activity regulation to cannabis. If a legislature adopts that section, they will then have the authority. States cannot expand their authority by simply adopting a regulation.
- Within the section in the previous bullet there are sections that are already specified with Section 11. Power and Duties and do not need to be mentioned a second time. If there is a duplication of

language it should be stricken from any newly created section. In some states cannabis is not be legalized for recreation or medicinal purposes. If this is adopted, would it create an issue, if a state adopts a regulation in its entirety?

- The language provides for areas and procedures for the measurement of potency, and measurement of water activity. Currently there are no documented test procedures in NIST HB 133 that provide inspectors with procedures for both of these areas. As addressed in our Technical Analysis, in general, weights and measures inspectors do not enforce ingredient, potency, drug content, safety labeling, and water activity on other products in the marketplace. The Cannabis TG should develop language on the measurement of cannabis potency and water activity for inclusion into NIST HB133.
- If the Weights and Measures law does not give the state director authority to regulate the types of cannabis labeling, amended language will be required adding the needed authority.
- We stated a number of reasons within our NIST OWM Detailed Technical Analysis for the Committee to survey the states and due to the high importance of this item, we encourage the states to promptly respond. As noted in the Florida letter dated December 2021, they had a 57-question survey that was prepared and sent to the states. With the share of Florida's survey information, we believe this can expedite the process in obtaining the necessary information that is needed to change a Weights and Measures Law.
- There has been little indication that Directors have sought advisement from their legal counsel that their state's weights and measures law provide the state director with authority to regulate cannabis labeling. We believe this should be done prior to the adoption of any cannabis related item.

Table 3. Summary of Recommendations

WAM-22.2 Section 11. Powers and Duties of the Director							
	V	D	W	A	I	Note*	Comments
Submitter	✓						NEWMA submitted at their 2021 Fall Meeting
OWM				✓			
WWMA						4	
CWMA			✓				
SWMA						4	
NEWMA	✓						
NCWM	✓						
		Letters of Support	Letters of Opposition	Comments			
Regulator		1		Letter from Ms. Bell (FL Director of Cannabis). Re: Cannabis Agenda Items Submitted by the NCWM Cannabis Task Group (dtd. 12/7/2021)			

Table 3. Summary of Recommendations							
WAM-22.2 Section 11. Powers and Duties of the Director							
	V	D	W	A	I	Note*	Comments
*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:

Section 11. Powers and Duties of the Director

I. The Director shall:

...

II. The Director may:

(a) Establish by regulation for *Cannabis* and *Cannabis-Containing Products*:

- (1) reasonable variations in quantity caused by the unavoidable loss or gain of moisture during current good manufacturing and distribution practices and procedures for moisture determinations;
- (2) labeling requirements for, and defining reasonable variations in water activity that occur in current good manufacturing and distribution practices, and procedures for the measurement of water activity;
- (3) labeling requirements for, and defining reasonable variations in levels of cannabinoid that occur in current good manufacturing and distribution practices, and procedures for the measurement of potency; and
- (4) packaging and labeling requirements that may include, among other requirements, the characteristics of the packaging (e.g., color) and type of packaging (e.g., tamper evident, childproof, product stabilization), requirements for identity, ingredients, product lot code and date of packaging, contact information of the packer, special symbols or warnings, and potency. The requirements may also include prohibitions on packaging that may be misleading or confusing.

(b) The Director may prescribe by regulation, programs that utilize accredited testing laboratories and may enter into agreements to utilize conformity assessment programs and other technical services to ensure compliance with any of the prescribed requirements.

(Added 20XX)

NIST OWM Detailed Technical Analysis:

(Note: This information appeared in the 2021 L&R Fall OWM Technical Analysis within the overview for Block 3 Cannabis. Portions of the 2021 Fall Analysis that are specifically related to this Item appear below.)

As of February 3, 2022, there are 37 states, four territories and the District of Columbia allow the medical use of cannabis products. As of May 27, 2022, there were 19 states, two territories and the District of Columbia have enacted measures to regulate cannabis for adult non-medical use.

Survey to the States

In the Fall of 2021, OWM had requested the NCWM survey the state directors prior to the 2022 NCWM Interim Meeting to obtain additional information. The survey questions should be prepared to obtain feedback on the following issues:

- Have Directors consult with their department's attorney to determine if adding the definition and other cannabis proposed requirements to the Uniform Packaging and Labeling Regulation or Method of Sale for Commodities Regulation will cause a conflict with their state laws or regulations.
- Establishing the method of sale by weight and establishing minimum load requirement to NIST Handbook 44 are of course within weights and measures authority. States should determine if any of the labeling and method of sale requirements may not be within their current regulatory authority.
- The most significant question is if state's weights and measure law authorize the director to adopt rules and regulations that require ingredient labeling, safety warnings, potency declarations and if they allow the director to establish and enforce water activity limits and verify potency labeling.

The L&R Committee should use these findings to determine how to proceed with the cannabis proposals on this agenda.

Current Authority in Weights and Measures Law

The survey may also reveal that a director has advisement from legal counsel that the State's weights and measures law does not give the state director authority to regulate the types of cannabis labeling. If the Committee determines this is the case, regardless of the number of states, amended language will be required to the Uniform Weights and Measures Law to add the needed authority. OWM had drafted a new subsection (r) to add appropriate regulatory authority to promulgate a variety of cannabis requirements to the Uniform Weights and Measures Law. The drafted language provides authority to the Director to set variations for potency, ingredients, warning labels, water activity and moisture loss or gain permitted when current good manufacturing and distribution practices are followed.

At the 2021 NEWMA Interim and 2022 NCWM Interim Meetings both Committees agreed to use this draft and add additional areas of responsibilities in this emerging area of weights and measures regulation.

The OWM draft language omits references to "intrastate commerce" because this UPLR provision in Section 12.1.2. "Variations Resulting from Exposure" states:

12.1.2. Variations Resulting from Exposure. – Variations from the declared weight or measure shall be permitted when caused by ordinary and customary exposure to conditions that normally occur in current good distribution practice and that unavoidably result in change of weight or measure, but only after the commodity is introduced into intrastate commerce, provided the phrase "introduced into

intrastate commerce” as used in this paragraph shall be construed to define the time and the place at which the first sale and delivery of a package is made within the state, the delivery being either:

- (a) directly to the purchaser or to his/her agent; or
- (b) to a common carrier for shipment to the purchaser,

and this paragraph shall be construed as requiring that so long as a shipment, delivery, or lot of packages of a particular commodity remains in the possession or under the control of the packager or the person who introduces the package into intrastate commerce, exposure variations shall not be permitted.

If packages are in the control of the packager or person, who introduces the packages into intrastate commerce, that reasonable variations in net quantity caused by the loss or moisture loss or gain shall not be recognized, which likely conflicts with the Federal Food, Drug and Cosmetic Act and FDA regulations. This is a complex legal issue that debated in 1981-1985 by the L&R Committee. The consensus among officials was that all packaged products should be treated the same regardless of whether they are in “intrastate” or “interstate commerce.”

OWM is trying to foresee potential problems with these proposals and is offering solutions that may allow for the adoption at the 2022 NCWM Annual Meeting. OWM recommends adding another Section which would allow the director to utilize accredited laboratories to perform testing when the states weights and measures laboratory does not have the capabilities. It also grants the director authority to employ a conformity assessment program. This could be a program where companies are inspected and accredited by a competent party, such as ASTM, who maintain accreditation and are subject to random audits to ensure compliance. This would allow the director to rely on alternative approaches instead of having their state metrology laboratory to obtain equipment and testing expertise they may not possess.

OWM believes that in the future weights and measures inspections will also need to employ increased interstate cooperation among weights and measures programs as well as conformity assessment, and accreditation programs to supervise the new ways commercial measurements are utilized. We see an increase of goods being delivered to homes directly from remote shipping facilities. The testing of prepackaged goods for testing will decline and that may lead to the need for states to reach out for assistance from other jurisdictions to investigate complaints. Assistance will be required to go into distribution points or point of pack to test packaged goods or assist in evaluating whether current good manufacturing practices are in place or to help in resolving moisture loss (or gain) issues.

Utilizing accreditation programs to ensure products compliance are currently in use around the world. An example of this is the U.S. Consumer Product Safety Commission (CPSC) having oversight of toys sold in the U.S. marketplace. The use of such systems would empower programs to focus on supervising the marketplace and using risk assessments and audits to oversee far more than is possible with today’s resources. OWM often hears weights and measures plays catch-up instead of actively participating in the development of new areas of commercial weighing and measurement. One way to take a larger step in any field of weighing and measurement is to be able to provide leadership and marketplace supervision using new approaches and looking for opportunities in the emerging areas of legal metrology regulations (e.g., electric vehicle charging systems and GPS transportation systems). Recognizing these options would be a good first-step for cannabis.

OWM also recognizes that regulation of cannabis packaging is different than other packaged products in the marketplace. Current authority for weights and measures regulations typically cannot prescribe the type and color of packaging, the use of production codes, manufacture date, warning labels cannabis symbols,

or other requirements. UPLR regulations cannot dictate whether the product can look like candy or baked goods or whether labels can display a picture of a cartoon character. But those aspects are part of the regulatory powers given to cannabis regulatory agencies in many states, and those local requirements vary depending on whether the state legislature allows recreational use or only medicinal use cannabis. In most jurisdictions only the state legislature can grant enforcement authority to regulatory agencies and sometimes there is overlap.

There are numerous examples from the past that show conflicting requirements and inspection procedures can be avoided through cooperation. Most states that have a Department of Agriculture have a state chemist and seed control laboratory, that have regulatory authority to prescribe net quantity of contents requirements. They work closely with the weights and measures division for guidance and assistance in ensuring that labeling regulations are consistent. The inspectors who carry out inspections have the authority as well as the training and equipment to perform the inspections and tests properly and uniformly. A similar solution is for weights and measures agencies to work collaboratively with the state agencies, that have authority to prescribe cannabis labeling, and to ensure any other agency's labeling requirements for legal metrology (which relate to declaration of identity, net quantity and responsibility and type size etc.) are consistent with the UPLR.

Regulatory Authority

It is understood that state legislature establishes the boundaries of regulatory authority for state agencies and if those limits are exceeded the regulations will likely be invalidated, and any enforcement actions taken under those regulations will be void. A similar issue over authority to regulate in a new area of enforcement was addressed by the NCWM in 1995 during the development of the Examination Procedure Outline (EPO) for Price Verification. At that time several states were advised by their legal counsel that unless state laws were amended by the legislature to allow for the EPO, it could not be used for enforcement purposes, and inspectors did not have the authority to conduct inspections related to scanner accuracy.

In response, the NCWM L&R developed subsection (r) for inclusion in Section 11. "Powers and Duties of the Director" in the Uniform Weights and Measures Law which gives weights and measures the authority to verify prices and take enforcement action using the EPO.

OWM has developed draft language for consideration that would provide authority for cannabis regulation.

Section 11. Powers and Duties of the Director

The Director shall:

...

(r) for Cannabis and Products Containing Cannabinoid(s)

(1) Prescribe by regulation:

- i. **reasonable variations in quantity caused by the loss or gain of moisture during current good distribution practice or by unavoidable deviations in current good manufacturing practice and procedures for moisture determination;**

- ii. labeling requirements for and defining reasonable variations in water activity that occur in current good manufacturing practice and current good distribution practice and procedures for the measurement of water activity;
 - iii. labeling requirements for and define reasonable variations in levels of cannabinoid: delta-9 THC, delta-8 THC (potency) that occur in current good manufacturing practice and current good distribution practice and procedures for the measurement of potency; and
 - iv. packaging and labeling requirements that may include, among other requirements, the characteristics of the packaging (e.g., color) and type of packaging (e.g., tamper evident, childproof), requirements for identity, ingredients, product lot code and date of packaging, contact information of the packer, special symbols or warnings, and potency. The requirements may also include prohibitions on packaging that may be misleading or confusing.
- (2) The Director may prescribe by regulation, programs that utilize accredited testing laboratories and may enter into agreements to utilize conformity assessment programs and other technical services to ensure compliance with any of the prescribed requirements.

Water Activity

For reasons presented below, OWM does not agree with the statements that having the authority to recognize moisture loss or gain or test fuel quality allows weights and measures directors to establish water activity limits. Other commenters argue that fuel quality specifications serve as justification for setting specific product qualities, but states that establish fuel quality requirements do so under the specific authority granted by their state legislatures to regulate fuel quality and not under an interpretation of their weights and measures laws (see for example the Uniform Fuels and Automotive Lubricants Inspection Law in NIST Handbook 130). In most states the authority to promulgate the types of labeling and method of sale requirements included among these proposals is delegated by legislatures to state health departments or created cannabis regulatory agencies (e.g., Colorado Cannabis, or the Maryland Medical Cannabis Commission.)

OWM recommends that state directors consult with their legal counsel to ensure their law provides explicit authority to regulate cannabis and extends to regulating water activity. If a state director determines that their authority does not extend to the requirements for water activity or cannabis labeling requirements, OWM has developed draft language for consideration that would provide authority for cannabis regulation.

Summary of Discussions and Actions:

At the 2022 NCWM Interim Meeting, Mr. Tim Chesser (Arkansas) asked if “unavoidable variations”. Within the language was necessary. Discussion ensued as to whether the language should be permissive and use the term “may.” This would also assist states that will not have legal authority over cannabis.

There were several regulators spoke in favor of the item including Florida which has already adopted regulations for cannabis in their state. In addition, Ms. Holly Bell (Director of Cannabis with Florida Department of Agriculture) submitted comments on the OWM Fall 2021 Analysis. Florida along with several states expressed a need for clear authority to regulate cannabis if the authority of weights and

measures officials to regulate is challenged and for those without current authority. NEWMA and other state regulators had no problem with changing “shall” to “may.” The Arizona Dispensaries Association and CPR Squared, Inc., representing the cannabis industry supported this item citing the need for regulation to protect the consumer and ensure a level playing field for industry. Mr. Kenneth Ramsburg (Maryland) opposed the language and for a national document it stated that it does not hold true across the nation, and requested it be withdrawn. Mr. Kurt Floren (Los Angeles County, California) stated that “reasonable variation” is within existing federal regulations, and this is for moisture that is a loss or gain.

Due to multiple open hearing statements in favor of adding a "may" distinction in this section, the Committee created a new section (2) to distinguish that all references to duties of the Director in reference to Cannabis and Cannabis containing products are permissive. Various other technical and grammatical edits were made to further clarify the new section. The Committee assigned Voting status to this item at the 2022 NCWM Interim Meeting.

Regional Association Reporting:

Western Weights and Measures Association

This item was not presented to the WWMA at their 2021 Annual Meeting.

Central Weights and Measures Association

This item was not presented to the CWMA at their 2021 Interim Meeting.

At the 2022 CWMA Annual Meeting, Ms. Lisa Warfield (NIST OWM) recommended this item be downgraded to Developing status or Assigned to the Cannabis Task Group to obtain additional information that OWM has recommended in their analysis. She further stated that as a non-regulatory metrology institute, NIST defers to federal agencies with regulatory authority under the Controlled Substances Act (CSA) for the scheduling of drugs or other substances. NIST does not have a policy role related to the production, sale, distribution, or use of cannabis (including hemp and marijuana) but remains committed to providing technical assistance to the weights and measures community. The NIST OWM has provided key technical points for the community to consider in its deliberations of cannabis-related proposals and are intended to encourage technical sound application of legal metrology laws, regulations and practices to the measurement and sale of these products.

With that in mind, Ms. Warfield stated that this regulation is written with permissive language in Section 11. Powers and Duties of the Directors. The permissive language should be replaced with language such as “For those states that have authority to regulate cannabis and cannabis-containing products the Director shall...(as opposed to may....)”. Duplicative language in multiple sections should be stricken. Ms. Warfield asked if this item is adopted in states where cannabis is not legal, would it create an issue if a state adopts a separate regulation in its entirety. Finally, this language provides for areas and procedures for the measurement of potency, and measurement of water activity. Currently there are no documented test procedures in NIST HB133 that provide inspectors with procedures for these areas. As addressed in the NIST OWM’s Technical Analysis, in general, weights and measures inspectors do not enforce ingredient, potency, drug content, safety labeling, and water activity on other products in the marketplace. She believes the Cannabis TG should develop language on the measurement of cannabis potency and water activity for inclusion into NIST HB133.

Mr. Doug Musick (Kansas) commented that weights and measures does enforce ingredients in fuel. He believes this item needs more work. Mr. Charlie Stutesman (Kansas) commented that he believes this proposal sets a precedent that would allow each product to have its own section and additionally a jurisdictional issue. He believes this item should be withdrawn because it does not belong in Handbook 133. Mr. Konrad Crockford (North Dakota) believes this item should either be downgraded or withdrawn because North Dakota does not have the experience within their weights and measures program to regulate quality for this item. Ms. Warfield further commented that states' packaging and labeling regulations already cover labeling and net contents. The Committee recommends this item be withdrawn because it is unnecessary to be explicit for cannabis. State agencies already have authority through the current powers and duties within state regulations.

Southern Weights and Measures Association

This item was not presented to the SWMA at their 2021 Annual Meeting.

Northeastern Weights and Measures Association

At the 2021 NEWMA Interim Meeting, this item was developed based upon a suggestion by NIST OWM. NEWMA supported the item and recommended it as a Voting status.

At the 2022 NEWMA Annual meeting, Mrs. Tina Butcher (NIST OWM) submitted the following comments:

“As a non-regulatory metrology institute, NIST, defers to federal agencies with regulatory authority under the Controlled Substances Act (CSA) for the scheduling of drugs or other substances. NIST does not have a policy role related to the production, sale, distribution, or use of cannabis (including hemp and marijuana).”

“While the 2018 Farm Bill removed hemp from the list of controlled substances under Schedule 1 of the CSA, marijuana remains on that list. NIST must respect that distinction even as it exercises its statutory authority to develop and disseminate national weights and measures standards for the production, distribution and sale of products in the commercial marketplace.”

“NIST remains committed to providing technical assistance to the weights and measures community. OWM has provided key technical points for the community to consider in its deliberations of cannabis-related proposals, and OWM would be happy to provide any necessary clarification. OWM comments are intended to encourage technically sound application of legal metrology laws, regulations, and practices to the measurement and sale of these products.”

No additional comments were received during open hearings.

PAL – UNIFORM PACKAGING AND LABELING REGULATION

PAL-22.3 V Section 8.2. Calculation of Area of Principal Display Panel for Purposes of Type Size.

Source: NIST Office of Weights and Measures

Purpose and Justification:

This section is being updated clarify through wording and graphic illustrations as to how to properly calculate the area of a principal display panel for purposed of type size.

The submitter requested that this be a Voting Item in 2022.

OWM Executive Summary for PAL-22.3 – Section 8.2. Calculation of Area of Principal Display Panel for Purposes of Type Size.							
OWM Recommendation: OWM believes this language is fully developed and recommends it as a Voting Item.							
There are minor formatting issues:							
- Under Section 8.2. subsections (a), (b), and (c) are reflected as new (bold/underscore). These subsections currently appear in NIST Handbook 130. - Under Section 8.2.(b). the calculation should read 25 cm (10 in) × 5 cm (2 in) = 125 cm (20 in²) × 0.40 = 50 cm² (8 in²) <u>5 cm (2 in) × 25 cm (10 in) = 125 cm² (20 in²) × 0.40 = 50 cm² (8 in²)</u> - On page 46 of NCWM Publication 16 the language reflected in (c) (lines 22-23) the language “Determination of the principal display panel shall exclude tops, bottoms, flanges at tops and bottoms of cans, and shoulders and necks of bottles or jars” should not be reflected as new language. The language that is being added is “See Figure 5. Other Shaped Containers.”							

Table 3. Summary of Recommendations							
PAL-22.3 – Section 8.2. Calculation of Area of Principal Display Panel for Purposes of Type Size.							
	V	D	W	A	I	Note*	Comments
Submitter	✓						
OWM	✓						
WWMA	✓						
NEWMA	✓						
SWMA	✓						
CWMA	✓						
NCWM	✓						
*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:

8.2. Calculation of Area of Principal Display Panel for Purposes of Type Size. – The area of the principal display panel shall be:

- (a)** in the case of a rectangular container, one entire side that properly can be considered the principal display panel, the product of the height times the width of that side;

For Figure 3 **Calculation of the Area of the Principal Display Area of a Rectangular Container**, the area of the principal display panel is 20 cm (8 in) × 15 cm (6 in) = 300 cm² (48 in²).

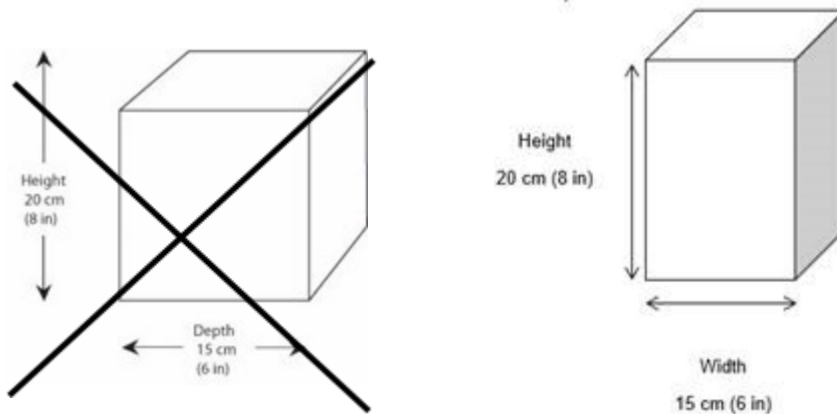


Figure 3. Calculation of the Area of the Principal Display Area of a Rectangular Container

- (b)** in the case of a cylindrical or nearly cylindrical container, ~~40 % of~~ the product of the height of the container times the circumference; **times 40 %.**

For Figure 4 **Calculation of the Area of the Principal Display Area of a Cylindrical Container**, the area of the principal display panel is:

$$\begin{aligned} &\text{25 cm (10 in)} \times \text{5 cm (2 in)} = \text{125 cm (20 in}^2\text{)} \times 0.40 = \text{50 cm}^2 \text{ (8 in}^2\text{)} \\ &\text{5 cm (2 in)} \times \text{25 cm (10 in)} \\ &= \text{125 cm (20 in}^2\text{)} \times 0.40 = \text{50 cm}^2 \text{ (8 in}^2\text{)} \end{aligned} \quad (\text{See also Section 10.7. Cylindrical Containers})$$

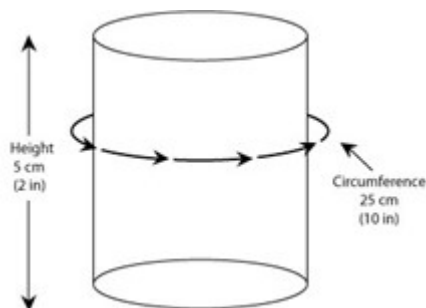


Figure 4. Calculation of the Area of the Principal Display Area of a Cylindrical Container

~~The area of the principal display panel is the same in both examples. The declaration of net quantity of contents must be of the same height in both cases. It is not the size of the label that is~~

~~used to determine the minimum type size of the quantity statement, but the size of the surface of the package exposed to view to the customer. The package on the right side of the figure has a spot label (see Section 2.12. Spot Label and Section 11.29. Spot Label); and~~

(c) in the case of any other shaped container, 40 % of the total surface of the container, unless such container presents an obvious principal display panel (e.g., the top of a triangular or circular package of cheese, or the top of a can of shoe polish), in which event the area shall consist of the entire such surface. **Determination of the principal display panel shall exclude tops, bottoms, flanges at tops and bottoms of cans, and shoulders and necks of bottles or jars. See Figure 5. Other Shaped Containers.**

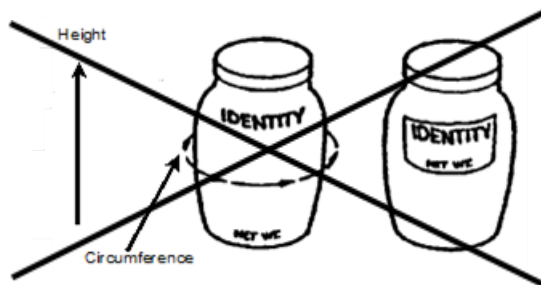
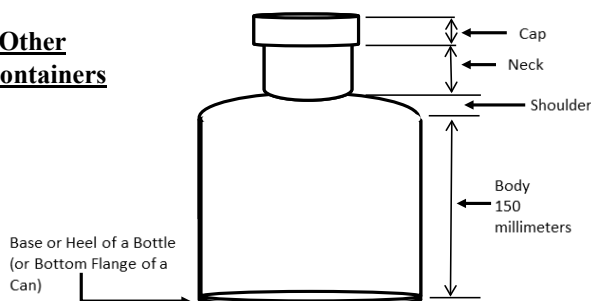


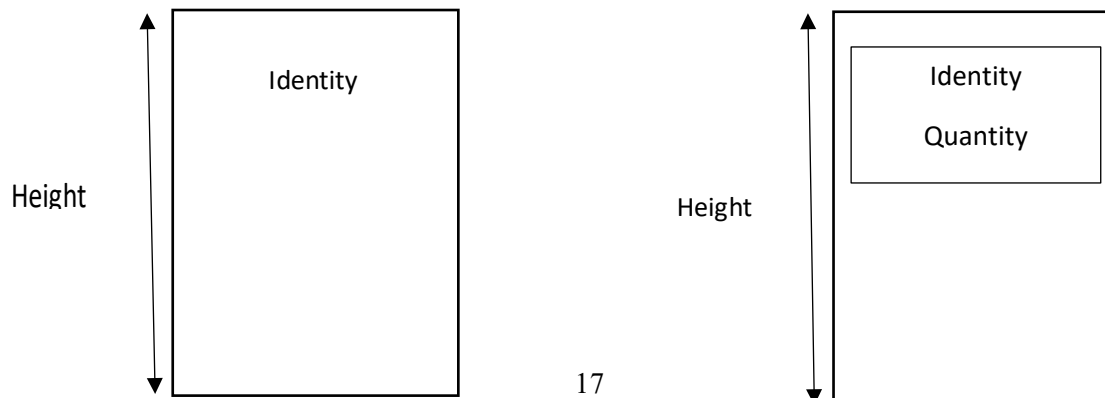
Figure 5. Other Shaped Containers.

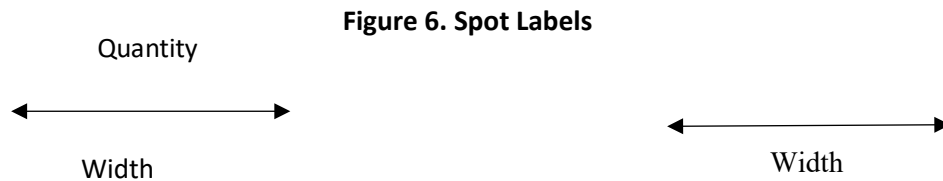
~~Determination of the principal display panel shall exclude tops, bottoms, flanges at tops and bottoms of cans, and shoulders and necks of bottles or jars.~~

Figure 5. Other Shaped Containers



(d) In the case of a spot label, it is not the size of the label that is used to determine the minimum type size of the quantity statement, but the size of the surface of the package exposed (panel) viewable to the customer. The declaration of net quantity of contents must be of the same height in both cases. In Figure 6. Spot Labels, the package on the right side of the figure has a spot label. The area of the principal display panel is the same in both examples. (see Section 2.12. Spot Label and Section 11.29. Spot Label).





NIST OWM Detailed Technical Analysis:

These amendments will help clarify the procedures for determining the area of the principal display panel and correct errors and make improvements in several graphics that appear in this regulation.

There are minor formatting issues:

- Section 8.2. the subsections should not be reflected in bold/underscore. These subsections currently appear in NIST HB 130.
- Section 8.2.(b) the calculation should read: ~~25 cm (10 in) × 5 cm (2 in) = 125 cm (20 in²) × 0.40 = 50 cm² (8 in²)~~ 5 cm (2 in) × 25 cm (10 in) = 125 cm² (20 in²) × 0.40 = 50 cm² (8 in²) (See also Section 10.7. Cylindrical Containers)
- On page 46 the new language on lines 22-23 exist within the handbook. The only new language being added to this subsection is the sentence that references “See Figure 5. Other Shaped Containers.”

Summary of Discussions and Actions:

At the 2022 NCWM Interim Meeting, several states spoke in support of this item and moving forward as a voting item. The Committee made some formatting changes to this item and recommended it as a Voting item.

The Committee assigned Voting status to this item because it heard only favorable comments during the open hearings and believes the item is fully developed.

Regional Association Reporting:

Western Weights and Measures Association

At the 2021 WWMA Annual Meeting, Ms. Lisa Warfield, (NIST OWM) (submitter) provided testimony that OWM submitted this item to clarify equations and update graphics. Mr. Matt Douglas (CDFA-DMS) provided testimony that the item is fully developed and supports with minor editorial changes to equations and graphics. The Committee recommends this as a Voting item with editorial formatting changes.

Central Weights and Measures Association

At the CWMA 2021 Interim Meeting, Ms. Warfield commented that this is an update of the language and graphics for this item, and it is fully developed. There were no other comments heard on this item. Based

on the supporting documents submitted by NIST, the Committee believes this item is fully developed and ready for Voting status.

At the 2022 CWMA Annual Meeting, Ms. Warfield believed this item to be fully developed but there are some minor formatting errors as follows:

- Under Section 8.2. subsections (a), (b), and (c) are reflected as new (bold/underscore). These subsections currently appear in NIST Handbook 130.
- On page 46 the new language reflected in Subsection C (lines 22-23) that starts with “Determination of the principal display panel shall...”) is language that currently exists within the handbook. The language that is being added is “See Figure 5. Other Shaped Containers.”

The Committee recommends this item remain a Voting item with the above editorial changes.

Southern Weights and Measures Association

At the 2021 SWMA Annual Meeting, no comments were received from the floor during open hearings. The Committee believes this item has merit and is fully developed. The Committee recommends this item as a Voting item.

Northeastern Weights and Measures Association

At the 2021 NEWMA Interim Meeting, Mr. David Sefcik (NIST OWM) commented that this proposal clarifies language in this section and updates graphics. He believed the item to be fully developed and ready for Voting status. Mr. John McGuire (New Jersey), Mr. Jim Willis (New York), Mr. Walt Remmert (Pennsylvania), and Mr. Jim Cassidy (Massachusetts) all supported the item moving forward with a Voting status. The Committee recommends the item be given Voting status.

At the 2022 NEWMA Annual meeting, no comments were received during open hearings.

MOS – UNIFORM REGULATION FOR THE METHOD OF SALE OF COMMODITIES

MOS-22.3 V Section 2.4. Fireplace and Stove Wood

Source: New Hampshire Division of Weights and Measures

Purpose and Justification:

To correct Part B. Uniform Regulation for the Method of Sale of Commodities and keep it consistent with federal requirements and to recognize products sold in the market that are not represented in current regulations. Also, to fix a couple unit representations.

2.4.3. Quantity. (b) Artificial compressed or processed logs.

Compressed firewood bricks are a popular product and are sold as a cleaner and more efficient alternative to cordwood. Since the regulation for artificial compressed or processed logs was added to the Handbook in 1976, compressed wood products, other than logs, have entered the market.

Compressed firewood bricks are generally sold in multipacks. There are some manufacturers that provide a net weight declaration on the multipack but there are several manufacturers that provide no declaration.

Bulk sales have been advertised and sold by the pallet or skid (no weight representation), by the number of multipacks on a pallet (no weight representation), by the ton, or with a representation that a pallet equals 1 cord of firewood. When compressed firewood bricks are sold by the pallet, by the number of multipacks per pallet, or by the representation that it equals (1) cord (or a portion thereof), the consumer has no way to determine value from one manufacturer to another and no way of knowing what they are purchasing, except through a visual representation. Unless the consumer knows both the weight of each multipack and the total weight representation of the “pallet” of compressed firewood bricks, they would have a very hard time determining whether a bulk purchase is a better value than purchasing a single multipack. Also, if manufacturers are selling bulk products in different ways, it makes it difficult for businesses to compete.

The proposed update will give clarification and direction on how compressed firewood bricks shall be sold. This handbook change will help 1) sellers to compete with other brands on the same playing field, 2) buyers with value comparison, and 3) regulators to know how to enforce the advertising and selling of this type of commodity.

2.4.3. Quantity. (a) Packaged natural wood. (1) and (d) Flavoring chips. (1)

The change to the units in these paragraphs is to represent “like for like”, “liters are to feet” as “a liter is to a foot” (plural and singular representations)

The submitter acknowledges the following:

- “Artificial compressed and processed logs” could be understood to include other compressed products used for heating fuel.
- As for the units change, this part of the code was amended in 2019 and included both regulators and industry, so individuals may question why it needs to be changed.

The submitter requested that this be a Voting Item in 2022.

OWM Executive Summary for MOS-22.3 – Section 2.4. Fireplace and Stove Wood							
OWM Recommendation: OWM believes that the National and Regional Meetings have addressed all concerns of the submitter and this Item is fully developed. OWM appreciates Mrs. Ayers for identifying and getting these issues addressed through the Conference.							

Table 3. Summary of Recommendations							
MOS-22.3 – Section 2.4. Fireplace and Stove Wood							
	V	D	W	A	I	Note*	Comments
Submitter	✓						
OWM	✓						
WWMA	✓					1	
NEWMA	✓						
SWMA	✓						
CWMA	✓						

Table 3. Summary of Recommendations							
MOS-22.3 – Section 2.4. Fireplace and Stove Wood							
	V	D	W	A	I	Note*	Comments
NCWM	✓						
*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:

2.4. Fireplace and Stove Wood. – For the purpose of this regulation, this section shall apply to the sale of all wood, natural and processed, for use as fuel or flavoring.

(Amended 1999)

2.4.1. Definitions.

2.4.1.1. Fireplace and Stove Wood. – Any kindling, logs, boards, timbers, or other wood, natural or processed, split, or not split, advertised, offered for sale, or sold for use as fuel.

(Amended 1991)

2.4.1.2. Cord. – The amount of wood that is contained in a space of 128 ft³ when the wood is ranked and well stowed. For the purpose of this regulation, “ranked and well stowed” shall be construed to mean that pieces of wood are placed in a line or row, with individual pieces touching and parallel to each other, and stacked in a compact manner.

2.4.1.3. Representation. – This shall be construed to mean any advertisement, offering, invoice, or the like that pertains to the sale of fireplace or stove wood.

2.4.1.4. Flavoring Chips. – Any kindling, logs, boards, timbers, or other natural or processed, split or unsplit wood that is advertised, offered for sale, or sold for flavoring smoked or barbequed foods.

(Added 1999)

2.4.2. Identity. – A representation may include a declaration of identity that indicates the species group (for example, 50 % hickory, 50 % miscellaneous softwood). Such a representation shall indicate, within 10 % accuracy, the percentages of each group.

2.4.3. Quantity. – Fireplace and stove wood shall be advertised, offered for sale, and sold only by measure, using the term “cord” and fractional parts of a cord or the cubic meter, except that:

- (a) **Packaged natural wood.** – Natural wood offered for sale in packaged form in quantities less than 0.45 m³ (1/8 cord or 16 ft³) shall display the quantity in terms of:

- (1) liters, ~~to include~~ including fractions or multiples of the liter. A net quantity of contents declaration and may also include a ~~declaration of~~ quantity in units terms of cubic foot ~~or feet to include~~ fractions or multiples of a cubic foot (i.e. cubic feet).
(Amended 2010, ~~and 2016, and 20XX~~)

***NOTE:** Implementation for the requirement for use of the liter in (1); packages may continue to show the cubic decimeter (dm³) instead of liters (L) for four years after the effective date of this regulation to allow for the use of current packages inventories.*

~~Effective date of enforcement shall be January 1, 2021.~~

~~(Added 2016) (Amended 2019)~~

- (b) Artificial compressed or processed logs products. – ~~A single fireplace log shall be sold by weight, and packages of such individual logs~~ Logs, bricks, or other shaped products greater than 15 cm (6 in) in any dimension shall be sold by weight plus count.
(Amended 20XX)
- (c) Stove wood pellets or chips. – Pellets or chips not greater than 15 cm (6 in) in any dimension shall be sold by weight. This requirement does not apply to flavoring chips.
(Amended 1976 and 1991)
- (d) Flavoring chips. – Flavoring chips offered for sale in packaged form in quantities less than 0.45 m³ (1/8 cord or 16 ft³) shall display the quantity in terms of:

- (1) liters, ~~to include~~ including fractions or multiples of the liter. A net quantity of contents declaration and may also include a ~~declaration of~~ quantity in units terms of cubic foot ~~or feet to include~~ fractions or multiples of a cubic foot (i.e. cubic feet).

(Added 1998) (Amended 2010 ~~and 2016~~ and 20XX)

***NOTE:** In determining the appropriate Method of Sale, a clear distinction must be made as to whether the wood is being sold primarily as fuel (some wood is sold as fuel but flavoring is a byproduct) or strictly as a wood flavoring.*

(Added 2010)

(Amended 1976, 1991, 1998, 2010, ~~and 2016~~ and 20XX)

2.4.4. Prohibition of Terms. – The terms “face cord,” “rack,” “pile,” “truckload,” or terms of similar import shall not be used when advertising, offering for sale, or selling wood for use as fuel.

2.4.5. Delivery Ticket or Sales Invoice. – A delivery ticket or sales invoice shall be presented by the seller to the purchaser whenever any non-packaged fireplace or stove wood is sold. The delivery ticket or sales invoice shall contain at least the following information:

- (a) the name and address of the vendor;
- (b) the name and address of the purchaser;
- (c) the date delivered;

- (d) the quantity delivered and the quantity upon which the price is based, if this differs from the delivered quantity;
 - (e) the price of the amount delivered; and
 - (f) the identity, in the most descriptive terms commercially practicable, including any quality representation made in connection with the sale.
- (Added 1975)

NIST OWM Detailed Technical Analysis:

OWM agrees that adoption of this proposal to recognize shapes of manufactured firewood products other than logs and with some minor revisions the changes will clarify the use of permitted units. When units of measure are used in packaging and labeling regulations multiples of that unit or fractions of the unit are also permitted. When a regulation reads the net quantity of contents declaration must be in terms of the cubic foot it is defined as meaning that both fractions of a cubic foot (0.75 cubic foot) and multiples of a cubic foot may be used in conjunction with a quantity declaration (2 cubic feet). This is correct even if the term “feet” is not mentioned in the regulation.

The Committee should be reminded, that packages of firewood are subject only to State regulation in the areas of legal metrology requirements (i.e., the Federal Fair Packaging and Labeling Act [FPLA] does not apply). Therefore, these packages may be labeled in only metric units (i.e., the liter). Under the UPLR packers have the option of including a declaration of quantity in terms of the U.S. customary system of units under the exemption in NIST HB130 Section 11.33. U.S. Customary Units, Exemptions – Consumer Commodities.

Packers must have the flexibility to offer packages with a varying quantity of contents (package sizes). If a method of sale or packaging or labeling regulation requires a commodity to be sold by the pound, fluid ounce or gallon the intent of the regulation must be understood that it is not restricted to only 1 pound, 1 fluid ounce or 1-gallon quantities may be offered or exposed for sale. Such a reading of the requirement would unintentionally impose package size or other restrictions on packers.

In the 1990s, NCWM all but eliminated package size restrictions in method of sale of commodities regulations in response to court cases, which found that package size restrictions, among imposing other burdens on businesses, and interfered with interstate commerce. International Dairy Foods Association (IDFA), which includes the Milk Industry Foundation and the International Ice Cream Association, supported the elimination of package size requirements for dairy products so that consumers can have more choice. Any remaining package size requirement found in the uniform regulations today are there because they are included in Federal laws.

OWM recommends the following revised language for (d)(1) to help clarify the regulation.

- (d) **Flavoring chips.** – Flavoring chips offered for sale in packaged form in quantities less than 0.45 m³ (¹/₈ cord or 16 ft²) shall display the quantity in terms of:
 - (1) liters, including ~~to include~~ fractions or multiples of the liter. A net quantity of contents declaration may also include a declaration of quantity in ~~terms units~~ of the cubic foot or feet ~~to include~~ fractions or multiples of the a-cubic foot (i.e., cubic feet).

(Added 1998) (Amended 2010, ~~and~~ 2016, and 20XX)

With the OWM recommended revision to the language we recommend that this proposal be a Voting Item.

Summary of Discussions and Actions:

At the 2022 NCWM Interim Meeting, several states spoke in favor of this item as a voting item. NEWMA supported it as a Voting item and provided some editorial changes for consideration. Ms. Warfield concurred with the NEWMA editorial changes. The Committee assigned Voting status for this item at the 2022 NCWM Interim Meeting. The Committee heard support from membership for the item based upon the language proposed in the 2021 NEWMA Interim report and made changes based upon the NEWMA report. The Committee also made editorial changes to the item.

Regional Association Reporting:

Western Weights and Measures Association

At the 2021 WWMA Annual Meeting, Ms. Lisa Warfield (NIST OWM) provided testimony to include a declaration of quantity in terms of cubic feet, to include fractions of a cubic foot. Mr. Kevin Schnepf (California Div. of Food and Agriculture, Department of Measurement Services {DFA-DMS}) provided testimony the item is well developed and supported this with minor editorial changes.

The Committee recommends this as a Voting Item with the following changes for 2.4.3.(a)1 to be added and modified language to 2.4.3.(d):

2.4.3. Quantity. – Fireplace and stove wood shall be advertised, offered for sale, and sold only by measure, using the term “cord” and fractional parts of a cord or the cubic meter, except that:

(a) **Packaged natural wood.** – Natural wood offered for sale in packaged form in quantities less than 0.45 m³ (1/8 cord or 16 ft³) shall display the quantity in terms of:

(1) liters, ~~to include including~~ fractions or multiples of the of the liter, ~~and A net quantity of contents declaration~~ may also include a declaration of quantity in ~~terms units of the~~ cubic foot ~~or feet to include~~ fractions or multiples of ~~the~~ cubic foot i.e., cubic feet.

(Amended 2010, ~~and~~ 2016, and 20XX)

***NOTE:** Implementation for the requirement for use of the liter in (1); packages may continue to show the cubic decimeter (dm³) instead of liters (L) for four years after the effective date of this regulation to allow for the use of current packages inventories.*

Effective date of enforcement shall be January 1, 2021.

(Added 2016) (Amended 2019 and 20XX)

(d) **Flavoring chips.** – Flavoring chips offered for sale in packaged form in quantities less than 0.45 m³ (1/8 cord or 16 ft³) shall display the quantity in terms of:

(1) liters, including ~~to include~~ fractions or multiples of the liter. A net quantity of contents declaration may also include a declaration of quantity in terms units of the cubic foot ~~or feet to include~~ fractions or multiples of a cubic foot (i.e., cubic feet).

(Added 1998) (Amended 2010, ~~and~~ 2016, and 20XX)

Central Weights and Measures Association

At the 2021 CWMA Interim Meeting, Ms. Lisa Warfield (NIST OWM) commented that there is additional language she would like the committee to consider in the NEWMA and WWMA reports. Based on review of the revisions recommended in the 2021 NEWMA Interim L&R Report, the Committee supports the revisions and believes this item is fully vetted and ready for voting status with revisions.

At the 2022 CWMA Annual Meeting no comments were heard on this item. The Committee believes this item is fully developed and should remain as a Voting item.

Southern Weights and Measures Association

At the 2021 SWMA Annual Meeting there were no comments received from the floor during open hearings. Ms. Warfield provided written analysis suggesting some language changes from the original proposal. The Committee recommends this item as a Voting item with the original language as submitted by New Hampshire Division of Weights and Measures.

Northeastern Weights and Measures Association

At the 2021 NEWMA Interim Meeting, Mrs. Cheryl Ayer (New Hampshire) commented that there were issues with the way compressed fire bricks and logs were being sold. NIST Handbook 130 does not clarify and include all processed and compressed products and this item clarifies and includes more of the types of products and clarifies volume statements. Mr. David Sefcik (NIST OWM) commented that OWM agrees with the changes and provided some minor clarifications in their analysis report. He further stated that the language changes in Section (d)(1) needs to be mirrored in Section (a)(1) and the Item would be ready for Voting status. Ms. Ayer believes the item is fully developed and ready for Voting status. Mr. Jim Cassidy (Massachusetts) supported this proposal and believes it is ready for Voting status. Mrs. Ayer accepts OWM's proposed changes as shown below. Mrs. Ayer also provided an editorial change in (b) changing the word "larger" to greater". The Committee recommends the item as ready for Voting status as amended.

2.4. Fireplace and Stove Wood. – For the purpose of this regulation, this section shall apply to the sale of all wood, natural and processed, for use as fuel or flavoring.
(Amended 1999)

2.4.1. Definitions.

2.4.1.1. Fireplace and Stove Wood. – Any kindling, logs, boards, timbers, or other wood, natural or processed, split, or not split, advertised, offered for sale, or sold for use as fuel.
(Amended 1991)

2.4.1.2. Cord. – The amount of wood that is contained in a space of 128 ft³ when the wood is ranked and well stowed. For this regulation, "ranked and well stowed" shall be construed to mean that pieces of wood are placed in a line or row, with individual pieces touching and parallel to each other, and stacked in a compact manner.

2.4.1.3. Representation. – This shall be construed to mean any advertisement, offering, invoice, or the like that pertains to the sale of fireplace or stove wood.

2.4.1.4. Flavoring Chips. – Any kindling, logs, boards, timbers, or other natural or processed, split or unsplit wood that is advertised, offered for sale, or sold for flavoring smoked or barbecued foods.

(Added 1999)

2.4.2. Identity. – A representation may include a declaration of identity that indicates the species group (for example, 50 % hickory, 50 % miscellaneous softwood). Such a representation shall indicate, within 10 % accuracy, the percentages of each group.

2.4.3. Quantity. – Fireplace and stove wood shall be advertised, offered for sale, and sold only by measure, using the term “cord” and fractional parts of a cord or the cubic meter, except that:

(a) **Packaged natural wood.** – Natural wood offered for sale in packaged form in quantities less than 0.45 m³ (¹/₈ cord or 16 ft³) shall display the quantity in terms of:

(1) liters, including ~~to include~~ fractions or multiples of the liter. A net quantity of contents declaration may also include a declaration of quantity in ~~terms~~ units of the cubic foot ~~or feet to include~~ fractions or multiples of a cubic foot (i.e., cubic feet).

(Amended 2010, ~~and~~ 2016, and 20XX)

NOTE: Implementation for the requirement for use of the liter in (1); packages may continue to show the cubic decimeter (dm³) instead of liters (L) for four years after the effective date of this regulation to allow for the use of current packages inventories.

Effective date of enforcement shall be January 1, 2021.

(Added 2016) (Amended 2019 and 20XX)

(b) **Artificial compressed or processed logs products.** – ~~A single fireplace log shall be sold by weight, and packages of such individual logs~~ Logs, bricks, or other shaped products larger greater than 15 cm (6 in) in any dimension shall be sold by weight plus count.

(Amended 20XX)

(c) **Stove wood pellets or chips.** – Pellets or chips not greater than 15 cm (6 in) in any dimension shall be sold by weight. This requirement does not apply to flavoring chips.

(Amended 1976 and 1991)

(d) **Flavoring chips.** – Flavoring chips offered for sale in packaged form in quantities less than 0.45 m³ (¹/₈ cord or 16 ft³) shall display the quantity in terms of:

(1) liters, including ~~to include~~ fractions or multiples of the liter. A net quantity of contents declaration may also include a declaration of quantity in ~~terms~~ units of the cubic foot ~~or feet to include~~ fractions or multiples of a cubic foot (i.e., cubic feet).

(Added 1998) (Amended 2010, ~~and~~ 2016, and 20XX)

NOTE: In determining the appropriate Method of Sale, a clear distinction must be made as to whether the wood is being sold primarily as fuel (some wood is sold as fuel but flavoring is a byproduct) or strictly as a wood flavoring.

(Added 2010)

(Amended 1976, 1991, 1998, 2010, ~~and~~ 2016 and 20XX)

2.4.4. Prohibition of Terms. – The terms “face cord,” “rack,” “pile,” “truckload,” or terms of similar import shall not be used when advertising, offering for sale, or selling wood for use as fuel.

2.4.5. Delivery Ticket or Sales Invoice. – A delivery ticket or sales invoice shall be presented by the seller to the purchaser whenever any non-packaged fireplace or stove wood is sold. The delivery ticket or sales invoice shall contain at least the following information:

- (a) the name and address of the vendor;
- (b) the name and address of the purchaser;
- (c) the date delivered;
- (d) the quantity delivered and the quantity upon which the price is based, if this differs from the delivered quantity;
- (e) the price of the amount delivered; and
- (f) the identity, in the most descriptive terms commercially practicable, including any quality representation made in connection with the sale.
(Added 1975)

At the 2022 NEWMA Annual Meeting there were no comments received during open hearings.

MOS-22.4 V Section 2.16. Compressed or Liquefied Gasses in Refillable Cylinders

Source: NIST Office of Weights and Measures

Purpose and Justification:

Update the Method of Sale Commodities Regulation, Section 2.16. Compressed or Liquefied Gases in Refillable Cylinders. The justification that was submitted with the initial proposal stated, “Add language to update and to align with Department of Transportation (DOT) Final Rule [Federal Register Volume 85, Number 248 (Monday, December 28, 2020)][Rules and Regulations](See [2020-26264.pdf \(govinfo.gov\)](#)) [Pages 85380-85437] regarding new requirements for the sale of LPG cylinders which is enforceable after December 28, 2022.”

The submitter does not believe there will be opposition to this proposal since it is aligning with Federal regulations. The submitter requested that this be a Voting Item in 2022.

OWM Executive Summary for MOS-22.4. – Section 2.16. Compressed or Liquefied Gasses in Refillable Cylinders	
OWM Recommendation: OWM recommends this as a Voting Item	
OWM believes the Item as written is ready for Voting. OWM is recommending the “Purpose” statement be updated to read, “Update the Method of Sale of Commodities Regulation, Section 2.16. Compressed or Liquefied Gases in Refillable Cylinders to align with new federal requirements, with the exception of the allowable differences for tare weight, which will be addressed pending the outcome of the 2022 NCWM National LPG Survey. In addition, update and	

clarify terms of unit representations and how to determine volumes of compressed or liquified gases.

- The NCWM National Survey on 20 lb LPG Cylinders was completed at the end of April. Reports received from states/counties have been sent to our NIST statistician is analyzing and summarizing the data. A final report is expected to be available by the end of the summer.

DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) is discussing with their Chief Counsel's office whether they believe DOT's allowable difference between the stamped tare weight and actual tare will preempt current NIST HB130 Method of Sale requirements. Based on the outcome of DOT decision, NIST OWM is working with NCWM to prepare a petition from NCWM to DOT to have the allowable differences reconsidered based on NCWM National Survey results and current states laws that have been in effect for over 30 years.

Table 3. Summary of Recommendations

MOS-22.4. – Section 2.16. Compressed or Liquefied Gasses in Refillable Cylinders

	V	D	W	A	I	Note*	Comments
Submitter	✓						
OWM	✓						
WWMA	✓						
NEWMA	✓					1	modified "Purpose" statement
SWMA	✓						
CWMA	✓						
NCWM	✓						

***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:

2.16. Compressed or Liquefied Gases in Refillable Cylinders.

2.16.1. Application. – This section does not apply to disposable cylinders of compressed or liquefied gases.

2.16.2. Net Contents. – The net contents shall be expressed in terms of cubic volume or weight, ~~meters or cubic feet, kilograms, or pounds and ounces.~~ For liquefied petroleum gas (LPG), see Section 2.21. Liquefied Petroleum Gas for permitted units of measure expressions of for declarations for net quantity of contents for liquefied petroleum gas. A standard cubic foot of gas is defined as a cubic foot at a temperature of 21 °C (70 °F) and a pressure of 101.35 kilopascals (14.696 psia), except for liquefied petroleum gas as stated in Section 2.21. Liquefied Petroleum Gas.

2.16.3. Cylinder Labeling. – Whenever cylinders are used for the sale of compressed or liquefied gases by weight, or are filled by weight and converted to volume, the following shall apply:

2.16.3.1. Tare weights.

- (a) **Stamped or Stenciled** – For safety purposes, the tare weight shall be legibly and permanently stamped or stenciled on the cylinder. All tare weight values shall be preceded by the letters “TW” or the words “tare weight.” The tare weight shall include the weight of the cylinder (including paint), valve, and other permanent attachments. The weight of a protective cap shall not be included in tare or gross weights. The 49 CFR 178.35 “General Requirements for Specification Cylinders” requires the maker of cylinders to retain test reports verifying the cylinder tare weight accuracy ~~to a tolerance of 1 %.~~
- (b) **Tare Weight for Purposes of Determining the Net Contents.** – The tare weight used in the determination of the final net contents may be either:
 - (1) the stamped or stenciled tare weight; or
 - (2) the actual tare determined at the time of filling the cylinder. If the actual tare is determined at the time of filling the cylinder, it must be legibly marked on the cylinder. ~~or on a tag attached to the cylinder at the time of filling.~~
- (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) $\frac{1}{2}$ % for tare weights of 9 kg (20 lb) or less; or
 - (2) $\frac{1}{4}$ % for tare weights of more than 9 kg (20 lb).

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.

- (d) **Average requirement.** – When used to determine the net contents of cylinders, the stamped or stenciled tare weights of cylinders at a single place of business found to be in error predominantly in a direction favorable to the seller and near the allowable difference limit shall be considered to be not in conformance with these requirements.
- (e) **Tare Determination.** – **The stamped or stenciled tare without applying the allowable difference in (c) above shall be used for purposes of verifying the net contents unless the actual tare weight is determined, then the actual tare weight shall be used for purposes of net content verification. The removable protective cap and label are not included in the stamped or stenciled tare but must be included in the total tare determinations.**

2.16.3.2. Water Capacity Weight (WC).

The water capacity of the cylinder, used to determine the maximum filling level of a cylinder, must be marked on the cylinder at the time of manufacture. The water capacity shall be abbreviated WC. The water capacity for a cylinder 11.34 kg (25 lb) water capacity or less, shall be allowed an allowable difference of – 1 % and no plus allowance; or for a cylinder exceeding 11.34 kg (25 lb) water capacity, an allowable difference of – 0.5 % and no plus allowance.

(Added 20XX)

2.16.3.23. Acetylene Gas Cylinder Tare Weights. – Acetone in the cylinder shall be included as part of the tare weight.

2.16.3.34. Acetylene Gas Cylinder Volumes. – The volumes of acetylene shall be determined from the product weight using **NIST Standard Reference Database 23 “Reference Fluid Thermodynamic and Transport Properties Database” (REFPROP) (see www.nist.gov/srd/refprop) (Note: Weights and measures officials should contact the NIST Office of Weights and Measures at (301) 975-4004 or owm@nist.gov for access to the database.) and supplemented by additional procedures approved tables such as those published by in NIST Handbook 133** or those developed using 70 °F (21 °C) and 14.7 ft³ (101.35 kPa) per pound at 1 atmosphere as conversion factors.

2.16.3.45. Compressed Gases such as Oxygen, Argon, Nitrogen, Helium, and Hydrogen. – The volumes of compressed gases such as oxygen, argon, nitrogen, helium, or hydrogen shall be determined using NIST Standard Reference Database 23 “Reference Fluid Thermodynamic and Transport Properties Database” (REFPROP) **(see www.nist.gov/srd/refprop) (Note: Weights and measures officials should contact the NIST Office of Weights and Measures at (301) 975-4004 or owm@nist.gov for access to the database.)** and supplemented by additional procedures ~~and tables in NIST Handbook 133.~~

(Added) 1981) (Amended 1990 and 20XX)

NIST OWM Detailed Technical Analysis:

OWM submitted these proposed amendments to avoid conflicts between the tare weight and other labeling requirements for compressed gas cylinders in the Method of Sale of Commodities Regulation and similar Federal regulations published by the U.S. Department of Transportation (DOT). If the conflicting provisions in NIST Handbook 130 are not revised before December 28, 2022, it is likely that conflicting requirements in the Method of Sale of Commodities Regulation will be found by a court of law to be preempted by the DOT regulations. This is due to Congress giving DOT the exclusive authority to regulate in this area of law (e.g., safety and interstate commerce).

OWM recommends this proposal to be a Voting item and that an effective date of these amendments be December 28, 2022, so they are effective on the same date as the new DOT regulations.

This was vetted at the 2021 Fall Regional Associations Meetings. The NCWM National Survey on 20 lb Cylinders of Liquefied Petroleum Gas (Propane) will not have results until early Fall 2022, therefore OWM is recommending the purpose statement be modified to read “Update the Method of Sale of Commodities Regulation, Section 2.16. Compressed or Liquified Gases in Refillable Cylinders to align with new federal requirements, with the exception of the allowable differences for tare weight, which will be addressed pending the outcome of the 2022 NCWM National LPG Survey. In addition, modifications are being done to update and clarify the terms of unit representations and how to determine volumes of compressed or liquified gases.

NIST has been assisting NCWM by coordinating, collecting, and analyzing data submitted by the states in order to support petitioning DOT in challenging the new allowable differences published by the DOT in a final rule entitled “Hazardous Materials: Miscellaneous Amendments Pertaining to DOT Specification Cylinders”, which has been implemented in **49 CFR § 178.35**. The survey data collection was completed in April 2022. All data has been sent to the NIST Statistical Department for analysis and summarization. A final report is expected to be available by the end of the September 2022.

DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) is discussing with their Chief Counsel’s office whether they believe DOT’s allowable difference between the stamped tare weight and actual tare will preempt current NIST HB130 Method of Sale requirements. Based on the outcome of DOT decision, NIST OWM is working with NCWM to prepare a petition from NCWM to DOT to have the allowable differences reconsidered based on NCWM National Survey results and current states laws that have been in effect for over 30 years.

Summary of Discussions and Actions:

At the 2022 NCWM Interim Meeting, Dr. Curran (Florida) questioned why the language referred the user to NIST OWM for the approved tables and was opposed to incorporating them into NIST Handbook 133. Dr. Curran requested having them in the NIST Handbook. Ms. Warfield (NIST OWM) remarked that URL to the Refprop database is already within the current handbooks. Part of the modified language is updating the URL. She also noted that States should contact NIST OWM to obtain access to the database free of charge. Some regulators expressed concern with the Tare Weight tolerances recommended by the DOT and the unavailability of data to support them. The Committee heard comments that substantial increases in those tolerances not only conflict with current ones adopted by the NCWM, but that they also bring uncertainty about the impact they may have in the market for both the industry and consumers, and possible safety issues like appropriate cylinder filling levels. Mr. Sefcik (NIST OWM) remarked that DOT failed to consider existing state tare weight allowances outlined in NIST HB130 which provides economic

protections for consumers and businesses by providing a “reasonable tolerance.” Mr. Sefcik also had concern with the economic impact the new DOT regulations may have, because the tolerances were more relaxed and can potentially cause product to be short weight or cause packers to overpack. Overpacking creates a loss to businesses.

Mr. Sefcik provided an update to the L&R Committee on the NCWM National LPG Survey. He expressed that the data results from this survey will warrant whether DOT should be petitioned to reconsider changes to their requirements. Based upon this information, the Committee kept the existing tare weight allowances as written in the current handbook to remain “as is” until the data is finalized from the survey.

The Committee assigned Voting status to this item at the 2022 NCWM Interim Meeting since no one spoke in complete opposition to the item.

Regional Association Reporting:

Western Weights and Measures Association

At the 2021 WWMA Annual Meeting, Ms. Lisa Warfield (NIST OWM) provided testimony that these proposed amendments are to avoid conflicts between the tare weight and other labeling requirements for compressed gas cylinders in the Method of Sale of Commodities Regulation and similar Federal regulations published by the U.S. Department of Transportation (DOT). If the conflicting provisions in NIST Handbook 130 are not revised before December 28, 2022, it is likely that the conflicting requirements in the Method of Sale of Commodities Regulation will be found by a court to be preempted by the DOT regulations. This is due to Congress giving DOT the exclusive authority to regulate in this area of law (e.g., safety and interstate commerce).

The Committee recommends this as a Voting item with the language as it appears in the agenda, and have an effective date of December 28, 2022

Central Weights and Measures Association

At the 2021 CWMA Interim Meeting, Ms. Warfield commented that OWM submitted these items to avoid conflicts between various federal entities and the method of sale section of the handbook. OWM recommends this proposal be a voting item, and the implementation date be December 2022 to align with the U.S. DOT. Mr. Doug Musick (Kansas) commented that under tare weights, **item section (C)(1) the words “an empty” be added to improve the proposed language.** He also asked if this requirement for marking a cylinder is the responsibility of the inspector or the entity selling the cylinder. Mr. Charlie Stutesman (Kansas) asked for clarification on this item. Ms. Warfield responded that aligning the language in the handbook with U.S. DOT is important, and if U.S. DOT is asked to revise their language related to the sale of LP, it would likely be an arduous and time-consuming process. Mr. Ivan Hankins (Iowa) commented that NIST and U.S. DOT are discussing this issue and would like input from states. Mr. Stutesman further commented that he believes that while the USDOT rules are posted for comment, he is unsure how many states have read the proposed regulation and know how it affects their specific jurisdictions. He asked the L&R Committee to move cautiously on this item. Ms. Warfield commented that there is additional information in the NIST analysis submitted to NCWM and the regions for each item on the agenda. Based on the time-sensitive nature of this item, the Committee believes the item is ready for Voting status with the proposed change to section C.1.

At the 2022 CWMA Annual Meeting, Ms. Warfield recommended the purpose statement be updated to read, “Update the Method of Sale of Commodities Regulation, Section 2.16. Compressed or Liquified Gases in Refillable Cylinders to align with new federal requirements except for the allowable differences for tare weight, which will be addressed pending the outcome of the 2022 NCWM National LPG Survey. In addition, update and clarify terms of unit representations and how to determine volumes of compressed or liquified gases.

Ms. Warfield also commented that the NCWM National Survey on 20-lb LPG Cylinders was completed at the end of April. Reports from states/counties have been sent to our NIST statistician, who are analyzing and summarizing the data. A final report is expected to be available by the end of the summer. U.S. DOT is in discussion with their Chief Counsel’s office as to whether they believe DOT’s allowable difference between the stamped tare weight and actual tare will preempt current NIST HB130 the Method of Sale requirements. Based on the outcome, NCWM is prepared to submit a petition to DOT to have the allowable differences reconsidered based on NCWM data from its National Survey and current states’ laws that have been in effect for over 30 years.

The Committee concurred that the purpose statement be updated to read, “Update the Method of Sale of Commodities Regulation, Section 2.16. Compressed or Liquified Gases in Refillable Cylinders” to align with new federal requirements except for the allowable differences for tare weight, which will be addressed pending the outcome of the 2022 NCWM National Survey. In addition, it will also have modifications to update and clarify terms of unit representations and how to determine volumes of compressed or liquified gases.

Southern Weights and Measures Association

At the 2021 SWMA Annual Meeting, Mr. Steve Benjamin (North Carolina) provided an informational update of this item. Mr. Don Onwiler (NCWM) solicited survey participation and requested that those interested provide their contact information to NCWM. Mr. Tim Chesser (Arkansas) expressed his disagreement with the statement “Failure of a cylinder tare weight to be within the required allowable difference is considered a Method of Sale violation.” In his opinion this is not a method of sale violation and would not apply to the State of Arkansas. NIST OWM provided written analysis recommending this proposal to be a Voting item and that an effective date of these amendments be December 28, 2022, so they are effective on the same date as the new DOT regulations.

The Committee believes this item has merit and is fully developed. The Committee recommends this item as a Voting item and take into consideration the effective date as recommended by NIST OWM.

Northeastern Weights and Measures Association

At the 2021 NEWMA Interim Meeting, Mr. Sefcik commented that this proposal was submitted to reflect new DOT requirements regarding the allowable difference between the stamped tare on an LPG cylinder and the actual tare. This new requirement takes effect December 28, 2022. This language will ensure that the method of sale in NIST HB130 for compressed or liquified gases in refillable cylinders does not conflict with these new federal requirements. Mr. Jim Willis (New York) asked to clarify how the tare weights would be tested without evacuating the cylinder during the test. Mr. Sefcik commented that to verify the stamped or accuracy statement of a tare weight, it should be done in the lab or at the plant with the assistance of a trained professional, rather than in the field. The Committee recommends the item as a Voting status.

At the NEWMA 2022 Annual Meeting, Mr. Sefcik commented that OWM believes this item is fully developed. However, the purpose statement needs to be revised to accurately reflect the intent of this item. The current purpose statement remains vague and needs additional clarification.

Recommended language to update the “Purpose” statement:

Update the Method of Sale Commodities Regulation, Section 2.16. Compressed or Liquefied Gases in Refillable Cylinders. ~~The justification that was submitted with the initial proposal stated, “Add language to update and to align with Department of Transportation (DOT) Final Rule [Federal Register Volume 85, Number 248 (Monday, December 28, 2020)][Rules and Regulations](See 2020-26264.pdf (govinfo.gov)) [Pages 85380-85437] regarding new requirements for the sale of LPG cylinders which is enforceable after December 28, 2022.”~~ to align with new federal requirements, with the exception of the allowable differences for tare weight, which will be addressed pending the outcome of the 2022 NCWM National LPG Survey. In addition, update and clarify terms of unit representations and how to determine volumes of compressed or liquified gases.

No additional comments received during the open hearing. The NEWMA L&R Committee recommends this item move forward as a voting item with the above change to the purpose statement.

MOS-20.5 V Section 2.21. Liquefied Petroleum Gas

Source: Arizona Department of Agriculture, Weights and Measures Services Division

Purpose and Justification:

Provide clarity and consistency regarding the method of sale (MOS) for liquefied petroleum gas (LPG) through a meter that has a maximum rated capacity of 20 gal/min or less.

There appears to be a lack of clarity and consistency regarding the method of sale (MOS) for liquefied petroleum gas (LPG) through a meter that has a maximum rated capacity of 20 gal/min or less. The Uniform Regulation for the Method of Sale of Commodities, Section 2.2. Liquefied Petroleum Gas specifically exempts these meters from the use of automatic temperature compensation but defines a gallon as 231 in³ at 60 °F [15.6 °C]. With this definition, it can be interpreted that, while automatic temperature compensation is not required, the sale of LPG shall be temperature compensated through manual means (or alternatively sold by weight). Temperature compensation manually requires the use temperature readings and a chart to manually perform conversions to determine the volume sold.

When discussing potential implementation of these requirements, propane industry officials in Arizona noted that other states do not require sale of LPG through these smaller meters to be temperature compensated or sold by weight and cited numerous problems with manual calibration or changing the MOS to sell by weight. An informal survey of western states appears to support that most do not enforce this requirement to sell LPG through these smaller meters by weight or temperature compensated.

Due to the inconsistency with the method of sale between various states and interpretation of this section, it is being proposed to exempt the sale of LPG through these smaller meters from temperature compensation. The item is proposed developing to allow for discussion and submittal of supporting cost analysis and impact to consumers and businesses that supports a requirement to sell LPG through these small meters as temperature compensated (or by weight).

The submitter noted that the sale of propane that is not temperature compensated can vary in quantities dispensed, which may provide a business or consumer with more or less product than stated.

OWM Executive Summary for MOS-20.5 – Section 2.21. Liquefied Petroleum Gas	
OWM Recommendation: OWM recommends this as a Voting Item.	
- OWM recognizes that this proposal did not garner enough votes at the 2021 NCWM Annual Meeting and was returned to the Committee. - OWM recommends that the Committee consider delaying the effective date in Section 2.21.2.(b).	

Table 3. Summary of Recommendations							
MOS-20.5. – Section 2.21. Liquefied Petroleum Gases							
	V	D	W	A	I	Note*	Comments
Submitter		✓					
OWM	✓						
WWMA						1	
NEWMA	✓						
SWMA	✓						
CWMA	✓						
NCWM	✓						
*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:

2.21. Liquefied Petroleum Gas.

2.21.1. Method of Sale. – All liquefied petroleum gas, including, but not limited to propane, butane, and mixtures thereof, shall be kept, offered, exposed for sale, or sold by the **following methods of sale.**
If kept, offered, exposed for sale, or sold by:

- (a) **Weight:** by the **kilogram** or pound; or by,
- (b) **Gaseous Volume:** **by the metered cubic meter of vapor (defined as 1 m³ at 15 °C);** or metered cubic foot of vapor (defined as 1 ft³ at 60 °F) ^[See Section 2.21. Note]; or by,
- (c) **Liquid:** **by the liter (defined as 1 liter at 15 °C) or** the gallon (defined as 231 in³ at 60 °F). ~~All metered sales by the or gallon, except those using meters with a maximum rated capacity~~

~~of (20 gal)/min or less, shall be accomplished by use of a meter and device that automatically compensates for temperature.~~

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, 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.**

Section 2.21. NOTE: Sources: ~~American National Standards Institute, Inc., ANSI B109.1 (20082000), “American National Standard For Diaphragm-Type Gas Displacement Meters (14.16 Cubic Meters fUnder 500 Cubic Feet} Per Hour Capacity and Under),”~~ and NIST Handbook 44, “Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices.”

(Added 1986, Amended 20XX)

NIST OWM Detailed Technical Analysis:

The requirement for selling LPG based on a 60 °F gallon is already stated in this regulation and applies to all sales. The current language in the regulation is vaguely written and has resulting in conflicting interpretations. Some officials read the requirement that automatic temperature compensation be provided on metering systems delivering more than 20 gal/ min as also exempting sales of LPG in other applications from being sold and delivered using automatic temperature compensation.

OWM recognizes that this proposal did not garner enough votes at the 2021 NCWM Annual Meeting and was returned to the Committee. OWM believes this proposal is fully developed and consideration should be given to delaying the effective date.

Summary of Discussions and Actions:

At the 2020 NCWM Interim Meeting, Mr. Tim Chesser (Arkansas) felt that the current proposal conflicts with language in NIST Handbook 44. Mrs. Tina Butcher (NIST OWM) responded the current language in Handbook 44 does not conflict with the language in this item, referencing language from NIST Handbook 44 stating “If a device is equipped with an automatic temperature compensator.” This suggests that language in NIST Handbook 44 does not require modification to accommodate devices with automatic temperature compensation capabilities. Mr. Constantine Cotsoradis (Flint Hill Resources) questioned if this proposal would have any benefit for consumers. Representing the submitter, Mr. Vince Wolpert (Arizona) stated that temperature in the state ranges from 32 °F to 100 °F and volume delivered for LP sales varies accordingly. As a result of the lack of consistency with volume delivered the state receives a lot of complaints concerning LP sales. Several regulators commented that the most equitable way to address the issue is to require automatic temperature compensation for all sales. The original submitter received

feedback from the fall regions and modified the language (dated January 24, 2020). The submitter, Ms. Wilson recommended this modified language be vetted through the regional meetings and industry for consideration. Currently, the Committee concurs with the recommendation and moved this item forward as the Item Under Consideration as Informational.

On the 2020 NCWM Interim Agenda the item under consideration appeared as:

2.21. Liquefied Petroleum Gas. – All liquefied petroleum gas, including, but not limited to propane, butane, and mixtures thereof, shall be kept, offered, exposed for sale, or sold by the pound, metered cubic foot [^{NOTE 7, page 132}] of vapor (defined as 1 ft³ at 60 °F [15.6 °C]), or the gallon (defined as 231 in³ at 60 °F [15.6 °C]). All metered sales by the gallon, except those using meters with a maximum rated capacity of 20 gal/min or less, shall be accomplished by use of a meter and device that automatically compensates for temperature. **Metered sales using a meter with a maximum rated capacity of 20 gal/min or less is exempt from temperature compensation requirements.**

(Added 1986 **Amended 20XX**)

At the 2021 NCWM Interim Meeting, the language within NCWM Publication 15 appeared as:

2.21. Liquefied Petroleum Gas. – All liquefied petroleum gas, including, but not limited to propane, butane, and mixtures thereof, shall be kept, offered, exposed for sale, or sold by the pound, metered cubic foot [^{NOTE 7, page 132}] of vapor (defined as 1 ft³ at 60 °F [15.6 °C]), or the gallon (defined as 231 in³ at 60 °F [15.6 °C]). ~~All metered sales by the gallon, except those using meters with a maximum rated capacity of 20 gal/min or less, shall be accomplished by use of a meter and device that automatically compensates for temperature.~~

(a) All metered sales by the gallon using a meter with a maximum rated capacity greater than 20 gal/min, shall be accomplished using a meter and device that automatically compensates for temperature.

(b) For equipment placed in service on or after January 1, 2023, all metered sales using a meter with a maximum rated capacity of 20 gal/min or less shall be accomplished by use of a meter and device that automatically compensates for temperature.

(c) Effective January 1, 2030, all metered sales shall be accomplished by use of a meter and device that automatically compensates for temperature.

(Added 1986 **Amended 20XX**)

Mr. Chesser commented his concern with conflicts between the method of sale and NIST Handbook 44 requirements. Mrs. Butcher addressed questions that were stated within the reporting for this item. Mrs. Butcher also provided an in-depth background and discussion on this item. It was noted that NIST OWM submitted modified language that was posted under the NCWM L&R supporting documents.

Some of the bullet points that were in the NIST analysis of this item were:

- The existing language references a value of “15.6 °C” for temperature determinations in metric units, according to the current industry practice for sales of petroleum products, the reference temperature for sales in metric are based on 15 °C rather than the exact conversion from 60 °F (which is 15.6 °C). Thus, the temperature reference in metric should be 15 °C.

- The current method of sale for LPG requires sales based on a specified reference temperature because of the significant effects of temperature on the volume of LPG. This helps ensure equity for buyer and seller; facilitate value comparisons among competing applications; and deter those who would take advantage of the effects of temperature on volume from using these effects to their advantage during sales under given temperature conditions.
- There is some concern that including effective dates as shown in the Item Under Consideration does have the effect of rescinding the original requirement for certain categories of sales. Additionally, specifying such dates may possibly lead to future extensions of these date or permanent exceptions. However, if this proposal will allow the community to progress toward more uniform implementation of temperature compensation in the commercial measurement of LPG, this approach may prove to be a valuable tool for accomplishing this goal and improve understanding and consistent application of the requirements, and we believe the submitter is to be commended for striving to achieve this clarity and uniformity in application.
- The second clause of the current Item Under Consideration addresses equipment put into service as of January 1, 2023. The generic reference to “equipment placed into service” implies that only newly installed equipment with flow rates of 20 gpm or less needs to include automatic temperature compensation capabilities. This could be misconstrued as negating the first clause in the proposal. We believe the intent of the submitter was to simply expand the requirement for “automatic” temperature compensation capability for metering systems above 20 gpm to include those systems below this flow rate point. Thus, a recommended alternative is included in the suggested changes.

Formatting Changes:

- By formatting the language into sub-sections, it makes the method of sale requirement easier to follow and apply and facilitates consideration of the Item Under Consideration.
- For the next released edition of NIST HB130, NIST OWM will be reformatting the references to “Notes” and their associated page numbers and replacing these with notes formatted as “Section ##. Note.”

Mr. Scott Simmons (Colorado) led a discussion regarding some of the issues that his state has faced regarding LPG sales. Mr. Simmons and many other regulators expressed support for this Item. It was expressed that many were unaware of the NIST modified proposal. L&R NCWM Chair McGuire encouraged membership to review the NIST proposal. During the Committee work session both the original and NIST proposals were discussed. A Committee member expressed concern that industry may be unaware of this agenda item. Several Committee members commented that they would reach out to their industry contacts to alert them. The Committee heard many comments that they supported the NIST proposal. The Committee was appreciative that NIST had reformatted the structure to make the language easier to read. The Committee recommends this move forward as a Voting item.

At the 2021 NCWM Annual Meeting, Mr. Swiecicki (NPGA) expressed concern with the language for temperature compensation and how the mechanical devices have a lag in correcting the temperature. Mr. Swiecicki did request that the date in Section 2.21.2.(b) be moved to 2025, or at least another year added. Mr. Schnepf (California) remarked that in Section 2.21.2.(a) the language should read “equal to or greater than” to align with NIST HB44 language. Mr. Allen (Arizona) was supportive of the changes from Mr. Schnepf. Mr. Willis (New York) rose to oppose this item and believes this item is detrimental to the propone industry. Mr. Willis remarked that they are done by weight and the temperature compensation is an issue with the smaller tanks. Mr. Ramsburg (Maryland) asked the committee to withdraw the item.

Based on testimony during open hearings and reviewing the documents from the regional meetings, the Committee changed the effective date in Section 2.21.2.(b) from January 1, 2023, until January 1, 2024. In Sections 2.21.2. (a), (b) and (c) replaced the words “meter and device” with “metering system.” The Committee concurred with Mr. Schnepf’s recommendation to modify the language in Section 2.21.2.(a) to replace the words “greater than or equal to” with “equal to or greater than”. This item did appear as a Voting Item at the 2021 NCWM Annual Meeting but did not garner enough votes, it was therefore returned to the Committee.

At the 2022 NCWM Interim Meeting, there were several regulators that spoke in favor of moving the item forward as voting. NGA also supported this change with a modify effective date. A regulator opposed the item stating that the small variance in gross and net quantities makes it unnecessary. This was challenged by another regulator who stated that the variances due to temperature variations in his state made it necessary. Another regulator suggested requiring an interlock mechanism.

The Committee assigned Voting status for this item at the 2022 Interim Meeting and extended the effective dates to address concerns expressed during the open hearings.

Regional Association Reporting:

Western Weights and Measures Association

At the 2021 WWMA Annual Meeting, Mr. Bruce Swiecicki (NPGA) provided testimony that highlighted concerns from the background information in the agenda. He commented that with meters dispensing at less than 20 gallons per minute, automatic temperature compensation would have a minimal effect on small deliveries. Mr. Swiecicki also commented on the financial burden that would be placed on industry to convert to automatic temperature compensation. Mr. Matt Douglas (CDFA-DMS) provided testimony that they support the item and there is redundant language that requires editing.

The Committee recommends this as a Voting item with the following editorial changes and a change in effective date from January 1, 2024, to January 1, 2025:

2.21. Liquefied Petroleum Gas.

2.21.1. Method of Sale. – All liquefied petroleum gas, including, but not limited to propane, butane, and mixtures thereof, shall be kept, offered, exposed for sale, or sold by-in accordance with the following methods of sale and conditions. ~~If kept, offered, exposed for sale, or sold by:~~

(a) Weight: by the kilogram or pound; ~~or by,~~

(b) Gaseous Volume: by the metered cubic meter of vapor (defined as 1 m³ at 15 °C); or metered cubic foot of vapor (defined as 1 ft³ at 60 °F) ^{[See Section 2.21. Note];} ~~or by,~~

(c) Liquid: by the liter (defined as 1 liter at 15 °C) or the gallon (defined as 231 in³ at 60 °F). ~~All metered sales by the or gallon, except those using meters with a maximum rated capacity of (20 gal)/min or less, shall be accomplished by use of a meter and device that automatically compensates for temperature.~~

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 equal to or greater than 20 gal/min shall be accomplished by the use of a metering system that automatically compensates for temperature.**
- (b) Sales using metering systems with a maximum rated capacity less than 20 gal/min that were placed into service after January 1, 2025 shall be accomplished by use of a metering system that automatically compensates for the effects of temperature.**
- (c) 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.**

Section 2.21. NOTE: Sources: ~~American National Standards Institute, Inc., ANSI B109.1 (2008/2000)~~, "~~American National Standard-For Diaphragm-Type Gas Displacement Meters (4.16 Cubic Meters [Under 500 Cubic Feet]-Per Hour Capacity and Under)~~," and NIST Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices."

(Added 1986, **Amended 20XX**)

WWMA L&R Committee believes this item is fully developed, the Committee has the following concerns:

- The potential lack of effectiveness of automatic temperature compensation on short deliveries.
- The financial burden on device operators that would be affected by the proposed changes.
- Would like to hear reasons for lack of supporting votes

Central Weights and Measures Association

At the 2021 CWMA Interim Meeting, Mr. Ivan Hankins (Iowa) commented that the WWMA and SWMA are recommending this item to be a voting item which allows for temperature compensation on 20 or less gpm meters. Mr. Charlie Stutesman (Kansas) commented that he believes the 2025 date is a more appropriate date for new meters rather than 2024, and all other devices be switched by 2030. He further commented that he supports getting compensators on the meters, particularly at retail sites where staff may not be properly trained on how to figure the compensated volume. The Committee believes that if this item is passed in 2022, the proposed 2024 date is a sufficient time to implement changes for new meters. The Committee believes this item is fully vetted and ready for voting status.

At the 2022 CWMA Annual Meeting, Ms. Lisa Warfield (NIST OWM) commented that a typical packaging change is adopted with a three-year lead time from the date of adoption. The Committee believes this item is fully developed and should remain as a Voting status item and recommends the three-year implementation suggestion.

Southern Weights and Measures Association

At the 2021 SWMA Annual Meeting, NIST OWM provided a written analysis that this proposal is fully developed, and consideration should be given to delaying the effective date until January 1, 2025. Mr. Tim Chesser (Arkansas) spoke in support of this item as long as the language is amended to an effective date of January 1, 2025. The Committee believes this is fully developed and recommends this as a Voting item with an effective date of January 1, 2025.

Northeastern Weights and Measures Association

At the 2021 NEWMA Interim Meeting, Mr. John McGuire (New Jersey) commented that there were changes made from the 2021 WWMA Annual Meeting L&R Report compared to the original submission. He believes the changes are helpful and would like to hear the opinions of other states. Mr. Jim Willis (New York) commented that he spoke to the submitter regarding the equivalency comparison to the gallon. Mr. Willis does not support this change. Mr. McGuire commented that those opposed to the item should indicate alternative options to verify volume. Mr. McGuire believes the item is ready for Voting status and believes that all metered sales by liquid volume should be sold by temperature compensation. Mr. David Sefcik (NIST OWM) agreed with Mr. McGuire that states that did not support this item previously, need to clarify their reasons for not supporting it. Mr. Walt Remmert (Pennsylvania) agreed with Mr. Willis that the original language was sufficient and does not need to be changed. Mr. Bruce Sweicicki (NPG) agreed that this item is unnecessary. He believes that the meters being used to determine volume are mechanical in nature and not precise enough for grill containers. Ms. Cheryl Ayer (New Hampshire) also opposed this item. Mrs. Tina Butcher (NIST OWM) commented that she agreed with Mr. McGuire and the original method of sale language referred to compensated temperature. Mr. Willis recommended the item be withdrawn. Mr. Jim Cassidy (Massachusetts) commented that since there is no consensus, he believes the item is not ready for Voting status. Mr. Ivan Hankins (NCWM Chair and Iowa) commented that the exception for cylinders under 20 pounds has been in the NIST Handbook since 1986 and believes it is best to sell all LPG using temperature compensation. Mrs. Butcher commented that the method of sale statement does not exclude automatic temperature compensation and it is simply in the second or alternative method of sale that appears after the original method of sale statement. L&R Chair Sakin commented that this item should have explicit clarity to avoid unintended consequences for small cylinders under 20 pounds. Mr. McGuire recommends Developing status for this item. The Committee concurs that this be recommended as a Developing Item.

At the NEWMA 2022 Annual Meeting, Mr. Willis stated that New York has opposed and voiced opposition for this item in the past. They believe this is burdensome for regulators and industry and continues to be opposed. No additional comments were received during the open hearing. NEWMA recommends this item move forward as a Voting item.

MOS-22.5 V Section 2.31.2.1. Labeling of Grade Required. and 2.31.2.2. EPA Requirements Also Apply.

Source: National Biodiesel Board (NBB)

Purpose and Justification:

To correct Part B. Uniform Regulation for the Method of Sale of Commodities and keep consistent with federal and industry requirements. The Committee assigned Voting status for this item at the 2022 Interim meeting. Sulfur regulations have changed so that ONLY ultra-low sulfur fuels (maximum 15ppm sulfur) are allowed for sale at retail dispensers. S500 biodiesel is no longer allowed to be sold at retail. Likewise, biodiesel blends must meet the ASTM D7467 Standard Specification for Diesel Fuel Oil, Biodiesel Blend (B6 to B20). The limits and allowances in ASTM D7467 Standard Specification for Diesel Fuel Oil, Biodiesel Blend (B6 to B20) do not include Grades 1-D, 2-D, or 4-D. The reference to **40 CFR 80.570** was only applicable for retail diesel fuels from 6/1/2006 until 11/30/2010.

The submitter requested that this be a Voting Item in 2022.

OWM Executive Summary for MOS-22.5 – Section 2.31.2.1. Labeling of Grade Required. and 2.31.2.2. EPA Labeling Requirements Also Apply.							
OWM Recommendation: OWM believes that this has been fully developed through FALS and recommends this as a Voting Item. All four Fall Regional Associations agreed this should be a Voting Item. - The Item Under Consideration has incorrect formatting applied to it. The following words should appear in bold and underscore format in Section 2.31.2.1. <u>“Biodiesel and biodiesel blends shall be identified in accordance with EPA and FTC requirements.”</u> - At the 2022 CWMA Annual Meeting, Mr. Corr proposed modifications based off information from 15 CFR § 306.0 Definitions and § 306.5 Automotive Fuel Rating. It was unclear if his modifications were considered more than editorial.							

Table 3. Summary of Recommendations							
MOS-22.5 – Section 2.31.2.1. Labeling of Grade Required. and 2.31.2.2. EPA Labeling Requirements Also Apply.							
	V	D	W	A	I	Note*	Comments
Submitter	✓						
OWM	✓						Change required in formatting
WWMA	✓						
NEWMA	✓						
SWMA	✓						
CWMA	✓						
NCWM	✓						
*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:

2.31.2.1. Labeling of Grade Required. – Biodiesel shall be identified by the grades S15 or S500. biodiesel blends shall be identified by the grades No. 1 D, No. 2 D, or No. 4 D. Biodiesel and biodiesel blends shall be identified in accordance with both EPA and FTC requirements.

2.31.2.2. EPA Labeling Requirements Also Apply. Retailers and wholesale purchaser-consumers of biodiesel blends shall comply with EPA pump labeling requirements for sulfur under 40 CFR 80.570.

NIST OWM Detailed Technical Analysis:

OWM suggests that when regulations are under revision that consideration be given to making them useable and easier for regulated businesses to comply and for inspectors to understand and enforce. The purpose statement for this proposal is to provide for a method of sale to ensure consistency with Federal and industry requirements. However, there are no industry standards included within the proposed language. For regulations to provide due process they must be written so they provide adequate notice to regulated businesses as to what they are required to do, to comply with the law. Finding specific requirements in the Code of Federal Regulations (CFR) is much easier if the citations are provided in a format as OWM proposes below for Item Block B4: MOS-22.1. “Section 2.20.2. Documentation for Dispenser Labeling Purposes. and 2.20.3. EPA Labeling Requirements.”

For example, OWM searched the CFR and found:

- The Federal Trade Commission regulations in Title 16 CFR “Commercial Practices” Part 306 – “Automotive Fuel Rating, Certification and Posting” and there are specific labeling requirements for Biodiesel found in Appendix A. “Summary of Labeling Requirements for Biodiesel Fuels.”
- The Environmental Protection Agency regulations in Title 40 CFR “Protection of the Environment” Part 1090 “Regulation of Fuels, Fuel Additives, and Regulated Blendstocks” Subpart P – “Retailer and Wholesale Purchaser-Consumer Provisions” in §1090.1515 “Diesel Sulfur Labeling Provisions”

OWM recommends that the Committee make it easier for regulated businesses to search the CFR in order to find the requirements and facilitate voluntary compliance. OWM recommends the proposal include the citations for the regulations for EPA and FTC product identity (and any specific industry standards as well if that is the submitter’s intent). OWM recommends with these changes that the Committee make this a Voting item.

For the convenience of the Committee, the URL for the Code of Federal Regulations (CFR) is: <https://www.ecfr.gov/>.

In the 2022 NCWM Publication 16, the Item Under Consideration has incorrect formatting applied. The following words should appear in Section 2.31.2.1. of the item under consideration shall appear in bold and underscore format “**Biodiesel and biodiesel blends shall be identified in accordance with EPA and FTC requirements.**”

At the 2022 CWMA Annual Meeting, Mr. Corr proposed the following modifications based upon information in **15 CFR § 306.0 Definitions** and **§ 306.5 Automotive Fuel Rating**. The CWMA was not clear whether these modifications were editorial or technical in nature. The CWMA had included his modifications as a supporting document which is viewable on the NCWM and CWMA website. OWM believes his modifications have merit and recommend that the L&R Committee, FALS, and membership review them.

2.31. Biodiesel and Biodiesel Blends.

2.31.1. Identification of Product. – Biodiesel shall be identified by the term “Biodiesel” with the designation “B100.” Biodiesel Blends **containing more than 5% biodiesel** shall be identified by the term “Biodiesel Blend.” **Biodiesel blends shall be identified in accordance with EPA requirements.**

2.31.2. Labeling of Retail Dispensers.

~~2.31.2.1. Labeling of Grade Required. — Biodiesel shall be identified by the grades S15 or S500. Biodiesel blends shall be identified by the grades No. 1-D, No. 2-D, or No. 4-D.~~

~~2.31.2.2. EPA Labeling Requirements Also Apply. — Retailers and wholesale purchaser-consumers of biodiesel blends shall comply with EPA pump labeling requirements for sulfur under 40 CFR 80.570.~~

~~2.31.2.3. 2.31.2. Automotive Fuel Rating. — Biodiesel and biodiesel blends shall be labeled with its automotive fuel rating in accordance with FTC requirements in 16 CFR 306 Automotive Fuel Ratings, Certification and Posting.~~

~~2.31.2.4. 2.31.3. Biodiesel Blends. — When biodiesel blends greater than 20 % by volume are offered by sale, each side of the dispenser where fuel can be delivered shall have a label conspicuously placed that states “Consult Vehicle Manufacturer Fuel Recommendations.” The lettering of this legend shall not be less than 6 mm (¹/₄ in) in height by 0.8 mm (¹/₃₂ in) stroke; block style letters and the color shall be in definite contrast to the background color to which it is applied.~~

~~2.31.3. Documentation for Dispenser Labeling Purposes. — The retailer shall be provided, at the time of delivery of the fuel, a declaration of the volume percent biodiesel on an invoice, bill of lading, shipping paper, or other document. This documentation is for dispenser labeling purposes only; it is the responsibility of any potential blender to determine the amount of biodiesel in the diesel fuel prior to blending.~~

~~2.31.4. Exemption. — Biodiesel blends that contain less than or equal to 5% biodiesel by volume are exempt from the requirements of Sections 2.31.1. Identification of Product, 2.31.2. Labeling of Retail Dispensers, and 2.31.3. Documentation for Dispenser Labeling Purposes when it is sold as diesel fuel.~~

(Added 2008) (Amended 20XX)

FTC Regulations – 16 CFR 306 Automotive Fuel Ratings, Certification and Posting

§ 306.0 Definitions

[emphasis added]

Note to paragraph (i):

...

Provided, however, that biodiesel blends and biomass-based diesel blends that contain less than or equal to 5 percent biodiesel by volume and less than or equal to 5 percent biomass-based diesel by volume, and that meet ASTM D975-09b, Standard Specification for Diesel Fuel Oils (incorporated by reference, see § 306.13), are not automotive fuels covered by the requirements of this part.

...

(j) *Automotive fuel rating* means –

...

(3) For biomass-based diesel, biodiesel, biomass-based diesel blends with more than 5 percent biomass-based diesel, **and** biodiesel blends with more than 5 percent biodiesel, a disclosure of the biomass-based diesel or biodiesel component, expressed as the percentage by volume.

§ 306.5 Automotive fuel rating.

...

(b) To determine automotive fuel ratings for alternative liquid automotive fuels other than ethanol flex fuels, biodiesel blends, and biomass-based diesel blends, you must possess a reasonable basis, consisting of competent and reliable evidence, for the percentage by volume of the principal component of the alternative liquid automotive fuel that you must disclose. **In the case of biodiesel blends, you must possess a reasonable basis, consisting of competent and reliable evidence, for the percentage of biodiesel contained in the fuel. In the case of biomass-based diesel blends, you must possess a reasonable basis, consisting of competent and reliable evidence, for the percentage of biomass-based diesel contained in the fuel.**

Summary of Discussions and Actions:

At the 2022 NCWM Interim Meeting, FALS Chair Striejewske stated that this should be a Voting item and it was developed from a review of regulations. The Committee recommended this as a Voting status.

Regional Association Reporting:

Western Weights and Measures Association

At the 2021 WWMA Annual Meeting, Mr. Russ Lewis (Marathon, representing API) stated he supported this proposal. The Committee recommends this as a Voting Item. The Committee also recommends that the FALS Subcommittee look at the OWM analysis supporting documentation for possible formatting of the citation to the Code of Federal Regulations throughout NIST Handbook 130.

Central Weights and Measures Association

At the 2021 CWMA Interim Meeting, Mr. Randy Jennings (representing the National Biodiesel Board) explained that the information currently in the handbook is not accurate and is outdated. He further commented that there are no requirements for labeling diesel in NIST Handbook 130, and more work needs to be done when referencing federal regulations in the handbook. Mr. Doug Musick (Kansas) supports removing the irrelevant information. He has concerns that if there are specific EPA and FTC requirements, the relevant references should be included in the handbook. Mr. Jennings commented that NBB is committed to further work on this section of the handbook. Mr. Musick supports the concept of striking all the language in the section. Mr. Charlie Stutesman (Kansas) commented that he supports the initial action of striking the inaccurate information, but he would also like to see citation references to EPA and/or FTC. He believes grade information should appear in the Uniform Fuels and Automotive Lubricants Regulation section of the Handbook rather than the Method of Sale section. Mr. Mike Harrington (Iowa) commented that he supports this item move forward as a voting item, as well as future work in this area. Ms. Lisa Warfield (NIST Technical Advisor) commented that if the federal regulation is cited, NIST would support the item. Ms. Moore (Growth Energy) commented that she is unsure if section 3.1 applies to all fuels, and then subsequent sections are specified by fuel type. She asked for clarity on this item. She further commented that we have these requirements on renewable fuels but not on fossil fuels. Mr. Chuck Corr

(Iowa Renewable Fuels Association) commented that this item as well as other items appearing in the Method of Sale section need further work. Based on comments during open hearings the Committee believes this item is fully developed and ready for Voting status.

At the 2022 CWMA Annual Meeting, Mr. Corr submitted amended language for consideration by the Committee and the Central Region. Ms. Warfield asked if these changes were truly editorial in nature. Mr. Mike Harrington (Iowa) commented that he supports the amended changes. Mr. Doug Musick (Kansas) commented that he believes it should be voted on at NCWM and if this is too big of a change that it should be downgraded, he also noted the item could be amended from the floor. Mr. Charlie Stutesman (Kansas) supports Mr. Corr's comments and believes all that has been done from the original proposal is non-technical and should move forward as a voting item with Mr. Corr's amended changes. Mr. Loren Minnich (Kansas) asked if this would change or only clarify the regulation. Ms. Kristy Moore (Growth Energy) commented that we do not mention other fuels such as biomass-based diesel, and a Form 15 should be submitted to do so. Mr. Corr commented he believes adding new fuels to the section should be included in the next steps.

Information submitted by Mr. Corr:

FTC Regulations – 16 CFR 306 *Automotive Fuel Ratings, Certification and Posting*

§ 306.0 Definitions

[emphasis added]

Note to paragraph (i):

Provided, however, that biodiesel blends and biomass-based diesel blends that contain less than or equal to 5 percent biodiesel by volume **and** less than or equal to 5 percent biomass-based diesel by volume, **and** that meet ASTM D975-09b, Standard Specification for Diesel Fuel Oils (incorporated by reference, see § 306.13), are not automotive fuels covered by the requirements of this part.

(j) *Automotive fuel rating* means -

(3) For biomass-based diesel, biodiesel, biomass-based diesel blends with more than 5 percent biomass-based diesel, **and** biodiesel blends with more than 5 percent biodiesel, a disclosure of the biomass-based diesel or biodiesel component, expressed as the percentage by volume.

§ 306.5 Automotive fuel rating.

(b) To determine automotive fuel ratings for alternative liquid automotive fuels other than ethanol flex fuels, biodiesel blends, and biomass-based diesel blends, you must possess a reasonable basis, consisting of competent and reliable evidence, for the percentage by volume of the principal component of the alternative liquid automotive fuel that you must disclose. In the case of biodiesel blends, you must possess a reasonable basis, consisting of competent and reliable evidence, for the percentage of biodiesel contained in the fuel. In the case of biomass-based diesel blends, you must possess a reasonable basis, consisting of competent and reliable evidence, for the percentage of biomass-based diesel contained in the fuel.

2.31. Biodiesel and Biodiesel Blends.

2.31.1. Identification of Product. – Biodiesel shall be identified by the term “Biodiesel” with the designation “B100.” Biodiesel Blends containing more than 5% biodiesel shall be identified by the term “Biodiesel Blend.” Biodiesel blends shall be identified in accordance with EPA requirements.

~~2.31.2. Labeling of Retail Dispensers.~~

~~2.31.2.1. Labeling of Grade Required.~~ – Biodiesel shall be identified by the grades ~~S15 or S500.~~ Biodiesel blends shall be identified by the grades ~~No. 1-D, No. 2-D, or No. 4-D.~~

~~2.31.2.2. EPA Labeling Requirements Also Apply.~~ – ~~Retailers and wholesale purchaser-consumers of biodiesel blends shall comply with EPA pump labeling requirements for sulfur under 40 CFR 80.570.~~

~~2.31.2.3. 2.31.2. Automotive Fuel Rating.~~ – Biodiesel and biodiesel blends shall be labeled with its automotive fuel rating in accordance with FTC requirements in 16 CFR 306 Automotive Fuel Ratings, Certification and Posting.

~~2.31.2.4. 2.31.3. Biodiesel Blends.~~ – When biodiesel blends greater than 20 % by volume are offered by sale, each side of the dispenser where fuel can be delivered shall have a label conspicuously placed that states “Consult Vehicle Manufacturer Fuel Recommendations.” The lettering of this legend shall not be less than 6 mm ($\frac{1}{4}$ in) in height by 0.8 mm ($\frac{1}{32}$ in) stroke; block style letters and the color shall be in definite contrast to the background color to which it is applied.

~~2.31.3. Documentation for Dispenser Labeling Purposes.~~ – ~~The retailer shall be provided, at the time of delivery of the fuel, a declaration of the volume percent biodiesel on an invoice, bill of lading, shipping paper, or other document. This documentation is for dispenser labeling purposes only; it is the responsibility of any potential blender to determine the amount of biodiesel in the diesel fuel prior to blending.~~

~~2.31.4. Exemption.~~ – ~~Biodiesel blends that contain less than or equal to 5% biodiesel by volume are exempt from the requirements of Sections 2.31.1. Identification of Product, 2.31.2. Labeling of Retail Dispensers, and 2.31.3. Documentation for Dispenser Labeling Purposes when it is sold as diesel fuel.~~

(Added 2008) (Amended 20XX)

NEXT STEPS

Incorporate biodiesel and biomass-based diesel into Diesel regulations in MOS and FLR.

2.40. Diesel Fuel. – Shall meet the following requirements, based on the biodiesel concentration of the fuel:

- (a) Diesel fuel that contains less than or equal to 5 % by volume biodiesel shall meet the latest version of ASTM D975, “Standard Specifications for Diesel Fuels” and shall be sold as diesel fuel.
- (b) Diesel fuel that contains greater than or equal to 6 % by volume biodiesel and that contains less than or equal to 20 % by volume shall meet the latest version of ASTM D7467, “Standard Specifications for Diesel Fuel Oil, Biodiesel Blend (B6 to B20).”

- (c) Only fuel additive registered with the U.S. EPA may be used to additize diesel fuel, and the final product shall meet the latest version of ASTM D975 and/or ASTM D7467.

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.

- (a) **Cetane Number.** – A minimum cetane number of 47.0 as determined by the latest version of ASTM D613, “Standard Test Method for Cetane Number of Diesel Fuel Oil.”

NOTE: ASTM D613, “Standard Test Method for Cetane Number of Diesel Fuel Oil” is the referee method; however, the following methods can be used to determine cetane number: the latest version of ASTM D6890, “Standard Test Method for Determination of Ignition Delay and Derived Cetane Number” (DCN) of Diesel Fuel Oils by Combustion in a Constant Volume Chamber”; and ASTM D7668, “Standard Test Method for Determination of Derived Cetane Number (DCN) of Diesel Fuel Oils–Ignition Delay and Combustion Delay Using a Constant Volume Combustion Chamber Method.”

- (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.
- (c) **Lubricity.** – A maximum wear scar diameter of 460 micrometers as determined by the latest version ASTM D6079, “Standard Test Method for Evaluating Lubricity of Diesel Fuels by the High-Frequency Reciprocating Rig (HFRR).”

NOTE: The latest version of ASTM D6079, “Standard Test Method for Evaluating Lubricity of Diesel Fuels by the High-Frequency Reciprocating Rig (HFRR)” is the referee method; however, the latest version of ASTM D7688, “Standard Test Method for Evaluating Lubricity of Diesel Fuels by the High-Frequency Reciprocating Rig (HFRR) by Visual Observation” can be used.

- (d) **Corrosion.** – A minimum rating of B+ as determined by the most recent version of NACE TM0172, “Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines.”

NOTE: The latest recent version of NACE TM0172 “Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines” is the referee method. The latest version of ASTM D7548 “Standard Test Method for Determination of Accelerated Iron Corrosion in Petroleum Products” can be used.

- (e) **Filter Blocking Tendency (FBT)** – A maximum of 2.2 by the latest version of ASTM D2068, “Standard Test Method for Determining Filter Blocking Tendency”, following procedure B.

- (f) **Injector Deposit Control.** – Maximum power loss in keep-clean mode of 2 % by the latest version of Coordinating European Council, CEC F-98-08, “Direct Injection, Common Rail Diesel Engine Nozzle Coking Test.”

2.40.2. Use of Other Diesel Terminology. – For any terms other than premium, super, supreme, or premier included in the diesel fuel product or grade name and/or advertisements and claims displayed on dispensers, pump toppers, pole signs and bollard signs which imply improved performance, the product must have a clearly-defined fuel property with a substantiated functional benefit. Such property must be measurable utilizing industry accepted test methodologies developed by recognized standards organizations such as ASTM, SAE, and CEC to allow verification of the improved performance.

(Added 2021)

The Committee supports this item as it appears on the agenda and acknowledges Mr. Corr’s presentation on amended changes. There were concerns as to whether or not the new language presented was proposed amended language is included as a supporting document to this report.

Southern Weights and Measures Association

At the 2021 SWMA Annual Meeting, Mr. Prentiss Searles (API) spoke in support of this item. NIST OWM provided a written analysis that recommended this as a Voting item and the NCWM L&R should consider including specific EPA and FTC product identity citations (and any other specific industry standards). The Committee believes this item has merit and is fully developed. The Committee recommends this item as a Voting item.

Northeastern Weights and Measures Association

At the 2021 NEWMA Interim Meeting, Mr. Chuck Corr (Iowa Renewable Fuels Association) believes this item needs additional development and provided comments:

1. The requirements in questions seem applicable to all diesel fuels.
2. The current wording in section 2.31.2.2. EPA Labeling Requirements Also apply, begins with the phrase “Retailers and wholesale purchaser-consumers ...”. The proposal correctly states that all retail diesel has the same sulfur limit.
 - a. There are some wholesale purchaser-consumer applications that could have higher sulfur limits for these fuels. I believe there is an EPA required sulfur labeling statement for these applications.
1. If this section is only applicable to retail fuels that requirement should be clearly stated. Now is the time to incorporate language for renewable diesel content in the fuels.
2. Question- there is a subsection deleted in the proposal. Is the remaining subsection automatically renumbered or should there be a statement to indicate that remaining subsections would be renumbered? I think the latter would be more transparent.

Mr. Randy Jennings (retired Tennessee) commented that the submitter, Mr. Fenwick submitted this to update this provision of NIST Handbook 130 which includes obsolete language related to sulfur labeling. Mr. Jennings suggested some of the grade language is not up to date. Mr. Jennings commented that diesel fuel regulations does not include grade labeling, so why should other fuels be required to do the same?

Chairman Sakin asked if this was an item meant to harmonize Handbook 130 with federal language. Mr. Jennings commented that it is an attempt to harmonize the language, but it is also an opportunity to improve the language and continue work on model language in NIST Handbook 130. Mr. Jennings believes the item is fully developed and ready for Voting status. Mr. Jim Willis (New York) commented that he believes the current information in NIST Handbook 130 is incorrect and recommends Voting status for this item. The Committee concurs and recommends Voting status.

At the NEWMA 2022 Annual Meeting, there were no comments received during the open hearing.

NET – HANDBOOK 133: CHECKING THE NET CONTENT OF PACKAGED GOODS

NET-20.2 W Section 4.5. Polyethylene Sheeting, Bags and Liners.

Source: New York State Weights and Measures

Purpose and Justification:

Remove antiquated terminology used for test equipment to test the thickness of polyethylene sheeting, bags, and liners.

Table 3. Summary of Recommendations							
NET-20.2 – Section 4.5. Polyethylene Sheeting, Bags, and Liners							
	V	D	W	A	I	Note*	Comments
Submitter	✓						
OWM		✓					
WWMA		✓					
NEWMA			✓				
SWMA		✓					
CWMA			✓				
NCWM			✓				
*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:

4.5. Polyethylene Sheeting, Bags, and Liners

Most polyethylene products are sold by length, width, thickness, area, and net weight. Accordingly, this procedure includes steps to test for each of these measurements.

(Amended 2017)

4.5.1. Test Equipment

- A scale that meets the requirements in Section 2.2. “Measurement Standards and Test Equipment.”
- Steel tapes and rulers. Determine measurements of length to the nearest division of the appropriate tape or ruler.
 - Metric units:

For labeled dimensions 400 mm or less, linear measure: 300 mm in length, 1 mm divisions; or a 1 m ruler with 0.1 mm divisions, overall length tolerance of 0.4 mm.

For labeled dimensions greater than 400 mm, 30 m tape with 1 mm divisions.
 - U.S. customary units:

For labeled dimensions 25 in or less, use a 36 in ruler with $\frac{1}{64}$ in or $\frac{1}{100}$ in divisions and an overall length tolerance of $\frac{1}{64}$ in.

For dimensions greater than 25 in, use a 100 ft tape with $\frac{1}{16}$ in divisions and an overall length tolerance of 0.1 in.
- Deadweight dial micrometer (or equal) equipped with a flat anvil, 6.35 mm or ($\frac{1}{4}$ in) diameter or larger, and ~~a 4.75 mm ($\frac{3}{16}$ in) diameter~~ flat ~~surface on the head of the spindle~~ head with a diameter between 3.20 mm ($\frac{1}{8}$ in) and 12.70 mm ($\frac{1}{2}$ in).

Note: Electronic or other instruments that provide equivalent accuracy are also permitted.

- ~~The mass of the probe head (total of anvil, weight 102 g or [3.6 oz], spindle, etc.) must total 113.4 g (4 oz).~~ **The pressure exerted by the instrument should not exceed 70 kPa (10 psi).**
- The anvil and spindle head surfaces should be ground and lapped, parallel to within 0.002 mm (0.0001 in), and should move on an axis perpendicular to their surfaces.
- The dial spindle should be vertical, and the dial should be at least 50.8 mm (2 in) in diameter.
- The dial indicator should be continuously graduated to read directly to 0.002 mm (0.0001 in) and should be capable of making more than one revolution. It must be equipped with a separate indicator to indicate the number of complete revolutions. The dial indicator mechanism should be fully jeweled.
- The frame should be of sufficient rigidity that a load of 1.36 kg (3 lb) applied to the dial housing, exclusive of the weight or spindle presser foot, will not cause a change in indication on the dial of more than 0.02 mm (0.001 in).
- The indicator reading must be repeatable to 0.001 2 mm (0.000 05 in) at zero.

- The micrometer should be operated in an atmosphere free from drafts and fluctuating temperature and should be stabilized at ambient room temperature before use.

Note: Other instruments are commercially available that utilize different methods of measuring thickness. Instruments of this nature are acceptable provided they meet or exceed the precision requirements noted within the latest version of ASTM D6988 “Guide for Determination of Thickness of Plastic Film Test Specimens” and the requirements of the applicable material or product specification or applicable test standards.

- Gage blocks covering the range of thicknesses to be tested should be used to check the accuracy of the micrometer
- None

NIST OWM Detailed Technical Analysis:

OWM continues to support the development of this proposal. OWM had recommended that the submitter also contact Ms. Alyson Flick (ASTM Staff Manager aflick@astm.org (610) 832-9710) for ASTM Technical Committee D20.19 “Film, Sheeting, and Molded Products.” The D20.19 Technical Committee who is responsible for standard guide ASTM D6988 “Standard Guide for Determination of Thickness of Plastic Film Test Specimens.” ASTM standards and often members of the technical committees from industry participate in development of standards and will provide the needed clarification or guidance on how the test method was intended to be used.

Summary of Discussions and Actions:

This item has been assigned to the submitter for further development. For more information or to provide comment, please contact:

Mr. Mike Sikula
New York Department of Agriculture and Markets
(518) 457-3452, mike.sikula@agriculture.ny.gov

This will update the test equipment to allow for the use of other type of instruments to perform the test procedure. In addition, it aligns the test equipment within the latest version of ASTM D6988 “Guide for Determination of Thickness of Plastic Film Test Specimens”

At the 2021 NCWM Interim Meeting, Mr. Kurt Floren (Los Angeles County, California) had concern with the spindle head having a diameter of 3.20 mm and 12.70 mm, due to the type of product being tested as this may create inconsistencies within the thickness. Mr. Floren would like to see data that justified this range. In addition, there are many other instruments that are available in the marketplace to do testing. Mr. Floren had concerns with this item proceeding as currently written. What is the current industry practice with this type of procedure? The Committee would like the submitter to review the recommendations that came out of the fall regional meetings. The submitter should also address any procedural differences between the current procedure and use of an electronic instrument. The Committee recommends this item as a Developing item. Mr. Kevin Schnepf (California) noted that ASTM D6988 has a maximum pressure of 70 kPa (10 psi) for thinner films and for thicker films, a pressure range between 160 and 185 kPa (23 and 27 psi). Mr. Floren also expressed concerns with the variability in plastics and the striations occur in

plastics. The Committees did not have any supporting data or repeatability test and asked that the developer review all the comments within this item by Fall Regional Association Meetings.

At the 2021 NCWM Annual Meeting, Mr. Willis provided an update that they are planning to do testing to provide data as requested by the Committee and regional associations. Mr. Schnepf further support the development of language and request that it be harmonized with ASTM D6988 for the thicker densities. The Committee continues to encourage the submitter with developing this item by the 2022 NCWM Interim Meeting.

At the 2022 NCWM Interim Meeting, Mr. Willis understood the concerns expressed about issues with the proposal, but he does not have time to further develop to address the issues. In addition, regulators had concern with the lack of data that was submitted. The Committee assigned Withdrawn status based upon the submitters wishes of Mr. Willis. The Committee did encourage Mr. Willis to submit a proposal when he was able to get it fully developed.

Regional Association Reporting:

Western Weights and Measures Association

At the 2021 WWMA Annual Meeting, Mr. Kurt Floren, (Los Angeles County, California) continued to have major concerns about this item. Proposing to change specifications for the micrometer used to test, anvil shape and size, spindle size, and the properties of the material being tested. Data has not been supplied to support the requested changes. Mr. Floren has recommended keeping this in Developmental status pending supplemental data from Submitter. Mr. Floren specified that if data was not provided by the submitter, the Item should be withdrawn. Mr. Kevin Schnepf (California) continued to have concerns about different pressure variables and consistency with ASTM D6988.

The Committee recommends that this item be withdrawn as the supporting documentation was not proved by the submitter. The WWMA L&R Committee recommends that supporting data be submitted before the Interim for consideration for future development. WWMA L&R is looking for supporting data that addresses concerns regarding repeatability in tests and variability in tested polyethylene materials. WWMA L&R would like to see data regarding the use of different spindle sizes being proposed and how the varying sizes of spindles affect the reading of the polyethylene thickness with comparative tests on the same sheet of polyethylene. The Committee would also like to see data regarding the repeatability of these tests.

Central Weights and Measures Association

At the 2021 CWMA Annual Meeting, Ms. Lisa Warfield (NIST OWM) commented that the submitter is hoping to have a revision for review at the NCWM Interim Meeting in 2022. Ms. Warfield further commented that the developer requested any comments or recommendations be provided by the Fall Regional Meetings. CWMA believes this item should remain a Developing item until additional data is collected as requested at the NCWM 2021 Interim Meeting.

At the 2021 CWMA Interim Meeting, no comments were heard. The submitter of this item provided additional supporting data. Based on the submission of some data but the need for more, the Committee believes this item should remain on the agenda as a Developing item.

Southern Weights and Measures Association

At the 2021 SWMA Annual Meeting, no comments were heard during open hearings. NIST OWM provided a written analysis that stated their continued support of the development of this proposal. OWM recommended that the submitter also contact ASTM to provide clarification and/or guidance on how the test method was intended to be used. The SWMA L&R Committee did receive supporting data from the submitter. The Committee recommends the item remain as a Developing item.

Northeastern Weights and Measures Association

At the 2021 NEWMA Interim Meeting, Mr. Willis commented he submitted data from a field test and encourages everyone to review it. The current procedure has testing equipment which used in the testing methodology is antiquated and not available to most inspectors. Mr. Jim Cassidy (Massachusetts) suggested training on polyethylene testing for the 2022 NEWMA Annual Meeting. Chairman Sakin commented that the 2021 WWMA L&R Annual Report suggested the item be withdrawn. Mr. Willis commented that WWMA didn't have the field test results and believes that is why WWMA recommended a Withdrawn status. Chairman Sakin asked if more testing could be completed, and more data collected. Mr. Cassidy recommends the item remain as a Developing item for additional data to be collected. Mr. McGuire concurs as does the Committee which recommends continuing Developing status.

At the 2022 NEWMA Annual Meeting, no comments were heard during open hearings.

NET-22.2 V 3.X. Volumetric Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter.

Source: Mr. Ronald Hayes (retired)

Purpose and Justification:

Allow the use of digital density meters for package checking testing of viscous and non-viscous liquids.

OWM Executive Summary for NET-22.2 – 3.X. <u>Gravimetric</u> Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter.
OWM Recommendation: With the OWM recommended revision to the language, OWM recommends this as a Developing or Assigned to a Task Group. • OWM has provided a revised copy of the Item Under Consideration with NIST comments and proposed changes in its detailed analysis. OWM has engaged its Lab Metrology program to provide input and feedback in determining and assessing any technical gaps. A copy is also available on the NCWM website under supporting documents. • The use of this equipment has great potential to facilitate package testing for many viscous and non-viscous liquids, as well as other weights and measures inspection areas. OWM will continue to assist the L&R Committee and the weights and measures community as it works to support the use of this equipment in official inspections. • Like any standards or test equipment such as test weights, volumetric standards, temperature sensing devices that will be used in regulatory action, it is essential for a weights and measures jurisdiction to validate the traceability of measurements made using the equipment. Results must be “beyond a

OWM Executive Summary for NET-22.2 – 3.X. Gravimetric Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter.

reasonable doubt.” It is OWM’s opinion this has not been met. Very limited testing has been conducted by the submitter.

- Significant changes have been made to the current item under consideration but only made available to membership one day prior to the start of the 2022 NCWM Interim. Although significant improvements have been made to the test procedure, OWM believes that moving the item forward as a Voting Item was premature. NIST OWM recommends that more time be provided for OWM and membership to properly review and vet the item.
- One of the greatest concerns is the limited testing analysis provided by the submitter comparing the digital density meter to the current NIST Handbook 133 volumetric test procedure. Data on only five products were submitted which is insufficient to statistically validate results to ensure the test procedure will be defensible for use in official inspections. The NIST OWM Detailed Technical Analysis provides for an in-depth analysis.
- The title to this section is incorrect, it should read 3.X. Gravimetric ~~Volumetric~~ Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter.
- The Committee removed the Table X.1. Density Coefficient Factor (Alpha) due to the factors not being validated. The Alpha correction must now be calculated manually using the formula provided in the test procedure. OWM believes adding this table back into the test procedure, with validated correction factors would benefit officials by eliminating manual calculations and simplifying the test procedure.
- The term “viscous” needs to be clearly defined by a numerical value. Adding a step for using a Viscometer to determine the viscosity in before determining the density should be considered. The number of products listed are somewhat exhaustive. OWM recommends that a select few items be targeted that are most likely to be tested by this method. Testing data must be sufficient for each commodity listed.
- Many questions need to still be answered such as the level of accuracy required bases on study, calibration methods including certified reference materials, limitations of the devices use, the number and type of samples that should be tested in order to validate results as compared to current NIST HB 133 procedures, proper procedures for validating a device. and whether adding a step for using a Viscometer to determine viscosity before determining the density is needed.
- OWM recommends that this test procedure be changed from an enforcement test to an audit test procedure. Consideration should be given making this an audit procedure, but additional data and analysis must be done. Before this is determined for use as an enforcement procedure clearer guidance needs to be provided regarding the limitations of these devices as stated in the body of our NIST OWM Detailed Technical Analysis.

Table 3. Summary of Recommendations							
NET-22.2 – 3.X. Gravimetric Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter.							
	V	D	W	A	I	Note*	Comments
Submitter	✓						
OWM		✓		✓			
WWMA				✓			
NEWMA				✓			
SWMA		✓					
CWMA				✓			
NCWM	✓						
*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 133, Checking the Net Contents of Packaged Goods, as follows:

3.1.1. Test Methods

Notes:

- (2) When checking liquid products using a volumetric or gravimetric procedure, the temperature of the samples must be maintained at the reference temperature $\pm 2^{\circ}\text{C}$ ($\pm 5^{\circ}\text{F}$), **except when 3.X. Gravimetric Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter is used.**

3.X. Gravimetric Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter

This test procedure can be used to determine the net contents of most package goods labeled in fluid volume. Manufacturer's instructions must be reviewed prior to use, to determine if the meter is suitable for testing the intended product.

This procedure is also useful for ensuring product quality for commodities (e.g., DEF, Antifreeze) that have a density requirement in their respective specifications.

This test procedure is suitable for measuring the density of homogenous liquids including dairy products such as milk and half & half; petroleum products such as fuel, motor oil, transmission fluid, paint thinner, brake fluid, diesel exhaust fluid, automotive coolant; pulp-free juices, wine, distilled spirits, water, mouth wash, alcohol, syrups, cooking oils, solvents, cleaning supplies, chemicals, as

well as other viscous and non-viscous liquids. All products tested shall be free of suspended gas, air, sediment, suspended matter.

This test procedure may be used as a substitute for testing non-viscous liquids gravimetrically using a flask (refer to 3.2. Gravimetric Test Procedure for Non-Viscous Liquids), the volumetric flask test procedure (refer to 3.3. Volumetric Test Procedure for Non-Viscous Liquids) or testing viscous fluids by the volumetric headspace procedure (refer to 3.4. Volumetric Test Procedures for Viscous Fluids – Headspace).

NOTE: This shall not be used for liquids with suspended solids such as orange juice with pulp, buttermilk, liquids requiring “shake before use”, paint, or carbonated products (soda, beer, etc.) or substances not approved by the digital density meter manufacturer.

Prior to using for compliance testing, the official’s metrological laboratory should perform a comparison between the densities obtained between Sections 3.2. Gravimetric Test Procedure for Non-Viscous Liquids or 3.3. Volumetric Test Procedure for Non-Viscous Liquids, and the digital density meter.

This test procedure can also be a time saver for screening products for proper fill and for quality control purposes.

3.X.1. Test Equipment

A scale that meets the requirements in Chapter 2, Section 2.2. “Measurement Standards and Test Equipment.”

Note: To verify that the scale has adequate resolution for use, it is first necessary to determine the density of the liquid. Using the density, convert the labeled volume to weight. Based on the labeled volume, determine the MAV using Table 2-6 “Maximum Allowable Variations for Packages Labeled by Liquid and Dry Volume” found in Appendix A. Using the density, convert the MAV from volume to weight. Next verify that the scale division is no larger than MAV/6 for the package size under test. The smallest graduation on the scale must not exceed the weight value for MAV/6.

Example:

Assume the inspector is using a scale with 1 g (0.002 lb) increments to test packages labeled 1 L (33.8 Fl oz) that have an MAV of 29 mL (1 Fl oz). Also, assume the inspector finds that the weight of 1 L of the liquid is 943 g (2.078 lb).

Density: 1 L = 943 g (2.078 lb)

MAV: 29 mL (1 Fl oz)

Convert Density into mL and Fl oz:

$$943 \text{ g} \div 1000 \text{ mL} = 0.943 \text{ g/mL} \qquad (2.078 \text{ lb} \div 33.8 \text{ Fl oz} = 0.0614 \text{ lb/Fl oz})$$

Convert MAV from Volume (mL/Fl oz) to Weight:

$$29 \text{ mL} \times 0.943 \text{ g/mL} = 27.347 \text{ g} \quad (1 \text{ Fl oz} \times 0.061 \text{ 4 lb/Fl oz} = 0.064 \text{ lb})$$

MAV in Weight/6

$$27.347 \text{ g} \div 6 = 4.557 \text{ g} \quad 0.064 \text{ lb} \div 6 = 0.010 \text{ lb}$$

In this example, the 1 g (0.002 lb) scale division is smaller than the MAV/6 value of 4.557 g (0.010 lb) so the scale is suitable for making a density determination.

- **Low pressure air pump– (e.g., an aquarium air pump)**
- **Syringe (glass or plastic with Luer fitting 5mL or larger)**

Note: Plastic syringe should be free of any lubricating substances

- **Distilled or deionized water**
- **Cleaning agents (See Table 3.X4. Cleaning Agents)**
- **Waste container**
- **Barometer for obtaining the prevailing barometric pressure, with an accuracy of ± 3.0 mmHg**
- **Thermometer for measuring air temperature with a tolerance of $\pm 1^\circ\text{C}$ (2°F)**
- **Portable digital density meter meeting a minimum requirement of:**

<u>Measuring Range</u>	
<u>Density</u>	<u>0 – 3 g/cm³</u>
<u>Temperature</u>	<u>0 – 40 °C (32 – 104 °F)^a</u>
<u>Viscosity</u>	<u>0 – 1000 mPa·s</u>
<u>Accuracy^b</u>	
<u>Density</u>	<u>0.001 g/cm³</u>
<u>Temperature</u>	<u>0.2 °C (0.4 °F)</u>
<u>Repeatability s.d.</u>	
<u>Density</u>	<u>0.0005 g/cm³</u>
<u>Temperature</u>	<u>0.1 °C (0.1 °F)</u>
<u>Sample Volume</u>	<u>2 mL</u>
<u>Sample Temperature</u>	<u>max. 100 °C (212 °F)</u>
<u>Footnotes</u>	
<u>^a Filling at higher temperatures possible.</u>	
<u>^b Viscosity < 100 mPa·s, density < g/cm³</u>	

3.X.2. Test Procedure

1. Follow Section 2.3.1. “Define the Inspection Lot.” Use a “Category A” sampling plan in the inspection. Select a random sample.
2. Bring the sample packages and their contents to a temperature between the reference temperature and ambient temperature.
3. Packages may be gently rolled to mix contents. Avoid shaking liquids. Shaking some products such as flavored milk will entrap air that will affect density measurements.
4. The digital density meter must at ambient temperature. Avoid causing condensation within the unit. Condensation could cause instrument malfunction and harm.
5. Using distilled or deionized water, validate the digital density meter per the manufacturer’s calibration instructions. The digital density meter shall calibrate within allowable density range ($\pm 0.0005\text{g/cm}^3$). The digital density meter shall be validated once each day prior to usage.
6. Ensure the digital density meter is clean prior to testing. Any residual liquid should be drained, and the unit should be flushed with a small amount of the sample to be tested. Flush and discard the sample two times before taking a measurement.
7. Follow the manufacturer’s instructions to select the correct method, when using a meter with built in correction factors, and measure the density of the sample using the built-in pump or syringe. Fill the sample slowly and gently. If gas or air bubbles are present drain sample and refill.

Note: Use of a syringe may be desirable to allow sample specimen to achieve ambient temperature prior to introduction of specimen into testing cell and for viscous specimens.

8. Once the digital density meter has stabilized (maintained reading $\pm 0.2\text{ }^{\circ}\text{C}$ ($\pm 0.5\text{ }^{\circ}\text{F}$) for 10 seconds) record density and temperature as indicated on instrument.
9. Apply density coefficient of expansion (Alpha) also known as the density correction factor (DCF), to correct to the reference temperature. See Table X.1. Reference Temperatures of Liquids. If the Alpha correction is not known, then factor can be calculated using the below formula.

Note: Some digital density meters may be programmed to automatically apply this correction.

Calculating the Temperature Coefficient Alpha

$$\text{Temperature coefficient Alpha} = \frac{\rho_1 - \rho_2}{T_1 - T_2}$$

ρ_1 density at temperature T_1

ρ_2 density at temperature T_2

T_1 temperature at initial measurement

T₂ temperature at second measurement

Note: If the density correction factor is not known but the volume correction factor (VCF) is known, the DCF can be calculated from the VCF using the following formula.

Density Temperature Factor Alpha = Absolute Value of Beta × Density.

10. **Apply viscosity correction if viscosity > 85 centipoise at 21 °C (70 °F) by adding the value in Table X. Density Measurement to your density measurement. After this correction, this value is the density of the substance in in the vacuum at the prescribed reference temperature.**

Note: Some digital density meters may be pre-programmed to automatically apply. See Table X. Viscosity Corrections of Common Materials

11. **Apply the apparent density correction by applying one of the following steps:**

- (1) **multiplying the density by 0.999; or**
- (2) **multiplying the density by the Apparent Mass Factor from Table X.3.; or**
- (3) **calculate apparent density by using the following.**

Converting True Density into Apparent Density

The apparent density *Paap* is defined as:

$$Paap = \frac{P_{true, sample} - P_{air}}{1 - \frac{P_{air}}{8.0 \text{ g/cm}^3}}$$

Where:

***Paap* = apparent density of the sample**

***Psteel* = 8.0 g/cm³**

***Pair* = true density of air**

***Ptrue, sample* = true density of the sample**

The apparent density is smaller than the true density and can be calculated from the true density considering the buoyancy of the sample in air and the weight and density of a reference weight in steel.

*** *Pair* = true density of air as calculated from equation in Table X.0.**

After application of this factor or calculation, the new value is density of the substance in air.

12. Drain the instrument and repeat Steps 6–10 on a second specimen of the same package for verification of first measurement.
13. Compare the two readings, they must agree within 0.0003 g/cc. Calculate the average density of the two specimens from the sample. If the difference of two readings is greater than 0.0003 g/cc, discard results and repeat testing of sample. Air or undissolved gas will cause erroneous measurement errors. The user of the test procedure shall always visually inspect for undissolved gas in the measurement tube for a valid test.
14. Repeat testing for the second (or subsequent) package(s) of the lot.
15. Calculate the Average Product Density of sample 1 and sample 2. The two results must agree within 0.0005 g/cc. If the difference between the densities of the two packages exceeds 0.0005 g/cc, use the volumetric procedure in Section 3.3. “Volumetric Test Procedure for Non-Viscous Liquids.”
16. Determine the Average Used Dry Tare Weight of the sample according to provisions of Section 2.3.5. “Procedures for Determining Tare.”
17. Calculate the “nominal gross weight” using the following formula:
$$\text{Nominal Gross Weight} = (\text{Average Product Density [in weight units]}) \times (\text{Labeled Volume}) + (\text{Average Used Dry Tare Weight})$$
18. Weigh the remaining packages in the sample.
19. Subtract the nominal gross weight from the gross weight of each package to obtain package errors in terms of weight. All sample packages are compared to the nominal gross weight.
20. To convert the average error or package error from weight to volume, use the following formula:
$$\text{Package Error in Volume} = \text{Package Error in Weight} \div \text{Average Product Density Per Volume Unit of Measure}$$
21. The digital density meter must be stored clean. After final use of the day or extended period of time, the instrument shall be drained and cleaned following the manufacturer’s recommended cleaning procedures and using two cleaning agents. The first cleaning agent removes sample residue, and the second cleaning agent removes the first cleaning agent. See Table X.4. Cleaning Agents for examples of cleaning agents recommended by a digital density meter manufacturer.

NOTE: If the unit will be immediately used to measure another sample of similar composition, the unit may be drained and flushed with new sample three times before the next analysis.
22. Connect digital density meter to a low-pressure air source, such as an aquarium air pump, to dry the unit’s measurement cell.

3.X.3. Evaluation of Results

Follow the procedures in Chapter 2, Section 2.3.7. “Evaluate for Compliance” to determine lot conformance.

<u>Table X.0. Density Measurement</u>		
<u>Calculate the density of air at the temperature of test</u> <u>using the following equation:</u> $\rho_{\text{air, g/mL}} = 0.001293[273.15/T][P/760]$ <u>where:</u> <u>T = temperature, K, and</u> <u>P = barometric pressure, torr.</u>		
<u>°C</u>	<u>mmH</u> <u>g</u>	<u>d_{air}, g/mL</u>
<u>15.56</u>	<u>760</u>	<u>0.001223314</u>

<u>Table X.1 Viscosity Corrections of Common Materials</u>		
<u>Material</u>	<u>Viscosity in Centipoise</u>	<u>Correction g/cc</u>
<u>Water</u>	<u>1 cP</u>	
<u>Milk</u>	<u>3 cP</u>	
<u>SAE 10 Motor Oil</u>	<u>85–140 cP</u>	<u>0.0003</u>
<u>SAE 20 Motor Oil</u>	<u>140–420 cP</u>	<u>0.0006</u>
<u>SAE 30 Motor Oil</u>	<u>420–650 cP</u>	<u>0.0007</u>
<u>SAE 40 Motor Oil</u>	<u>650–900 cP</u>	<u>0.0007</u>
<u>Castrol Oil</u>	<u>1,000 cP</u>	<u>0.0008</u>
<u>Karo Syrup</u>	<u>5,000 cP</u>	<u>0.0008</u>
<u>Honey</u>	<u>10,000 cP</u>	<u>0.00085</u>

<u>Table X.2. Apparent Mass Factor</u>					
<u>Elevation, ft</u>	<u>sea level</u>	<u>1500</u>	<u>3000</u>	<u>4500</u>	<u>6000</u>
<u>Barometer, mmHg</u>	<u>760</u>	<u>720</u>	<u>680</u>	<u>640</u>	<u>600</u>
<u>density, g/cc</u>	<u>Apparent Mass Factor</u>				
<u>0.500</u>	<u>0.9977</u>	<u>0.9979</u>	<u>0.9980</u>	<u>0.9981</u>	<u>0.9982</u>
<u>0.600</u>	<u>0.9981</u>	<u>0.9982</u>	<u>0.9983</u>	<u>0.9984</u>	<u>0.9985</u>

<u>Table X.2. Apparent Mass Factor</u>					
<u>0.700</u>	<u>0.9984</u>	<u>0.9985</u>	<u>0.9986</u>	<u>0.9987</u>	<u>0.9988</u>
<u>0.800</u>	<u>0.9986</u>	<u>0.9987</u>	<u>0.9988</u>	<u>0.9989</u>	<u>0.9989</u>
<u>0.900</u>	<u>0.9988</u>	<u>0.9989</u>	<u>0.9989</u>	<u>0.9990</u>	<u>0.9991</u>
<u>1.000</u>	<u>0.9989</u>	<u>0.9990</u>	<u>0.9991</u>	<u>0.9991</u>	<u>0.9992</u>
<u>1.100</u>	<u>0.9991</u>	<u>0.9991</u>	<u>0.9992</u>	<u>0.9992</u>	<u>0.9993</u>
<u>1.200</u>	<u>0.9991</u>	<u>0.9992</u>	<u>0.9992</u>	<u>0.9993</u>	<u>0.9993</u>
<u>1.300</u>	<u>0.9992</u>	<u>0.9993</u>	<u>0.9993</u>	<u>0.9993</u>	<u>0.9994</u>
<u>1.400</u>	<u>0.9993</u>	<u>0.9993</u>	<u>0.9994</u>	<u>0.9994</u>	<u>0.9994</u>
<u>1.500</u>	<u>0.9993</u>	<u>0.9994</u>	<u>0.9994</u>	<u>0.9994</u>	<u>0.9995</u>
<u>Elevation or prevailing barometric pressure at the location of measurement.</u>					

<u>Table X.3. Cleaning Agents</u>		
<u>Commodity</u>	<u>Cleaning Liquid 1</u>	<u>Cleaning Liquid 2</u>
<u>Petroleum products</u>	<u>Toluene, petroleum naphtha, petroleum ether, n-nonane, cyclohexane</u>	<u>Ethanol</u>
<u>Battery acid</u>	<u>Tap water</u>	<u>Ultra-pure (bi-distilled or deionized) water</u>
<u>Liquid soap and detergent, shampoo</u>	<u>Tap water</u>	<u>Ultra-pure (bi-distilled or deionized) water</u>
<u>Salad dressing, mayonnaise</u>	<u>Petroleum naphtha, dish washing agent in water</u>	<u>Ethanol</u>
<u>Suntan lotion</u>	<u>Tap water</u>	<u>Ethanol</u>
<u>Spirits</u>	<u>Tap water</u>	<u>Ultra-pure (bi-distilled or deionized) water</u>
<u>Grape juice, syrup</u>	<u>Warm tap water</u>	<u>Ultra-pure (bi-distilled or deionized) water</u>
<u>Milk*</u>	<u>Tap water, enzymatic lab cleaner</u>	<u>Ultra-pure (bi-distilled or deionized) water</u>

***NOTE: Do not introduce ethanol or other alcohols into instrument without first flushing all milk products from instruments.**

NIST OWM Detailed Technical Analysis:

Portable Digital Density Meters are in widespread use in the verification of the net quantity of contents by legal metrology programs in other countries to test a wide range of liquids including chemicals and oils. These devices are also widely used in industry laboratories and their performance with many viscous and non-viscous products is proven.

OWM agrees with the submitter that these devices may be used in audit testing and screening of packaged commodities for accurate quantity determinations. Inspectors should use the current procedures in NIST HB133 for enforcement purposes. This practice should continue until studies provide sufficient evidence that these devices can provide density values equivalent to those measured found using existing test methods.

OWM encourages that inspectors considering the use of these devices in determining product density to follow the guidance provided in Section 3.X. Scope to have these devices compared to current test procedures in a calibration laboratory. If that is not practical, it is important that inspectors using these devices in the field, also determine the product density using NIST HB133 Chapter 3. “Test Procedures – For Packages Labeled by Volume.” An inspector should perform several comparisons of two density values to ensure they are identical before using any value from a density meter to take enforcement action on packaged goods.

OWM also encourages users to share their test-method comparison data with the Committee and/or Task Group if formed so that it can be collected and analyzed as part of the national process for recognizing these devices for use in a future edition of NIST HB133.

The use of this equipment has great potential to facilitate testing in package checking as well as other weights and measures inspection areas. OWM looks forward to assisting the L&R Committee and the weights and measures community as it works to support the use of this equipment in official inspections.

As the Committee is aware, the current Item Under Consideration was completed and provided to the Committee by the submitter one day before the Interim started. OWM and others need additional time to adequately consider the most recent version of the proposal and to continue assessing technical gaps previously identified. OWM lab metrology staff is assisting the OWM L&R Advisors with a review of this proposal and OWM will be providing additional technical feedback to assist the Committee in assessing this proposal.

- Like any standards or test equipment such as test weights, volumetric standards, temperature sensing devices that will be used in regulatory action, it is essential for a weights and measures jurisdiction to validate the traceability of measurements made using the equipment. Results must be “beyond a reasonable doubt.” It is OWM’s opinion this has not been met. Limited testing has been conducted by the submitter.

The data provided thus far looks promising but is insufficient to ensure it will be defensible for use in official inspections. Data is insufficient in *quantity* to be statistically significant. Data collected is limited in *scope*. It does not address the range of proposed product types and applications.

- A wide variety of density meters with variable applications and accuracies are available. The cost of a Portable Digital Density Meter is approximately \$5000. Costs vary according to specific safety, security, and accuracy issues that must be met. Portable density meters, when purchased, are typically for specific commodity types, and not a wide range of commodities as outlined in the proposal.
- OWM recommends the L&R Committee consider the following actions.
 - ***Refine the Proposed Language.*** Additional modifications are needed to the proposal in specific areas to better define use.

- ***Limit the Scope of the Current Proposal.*** Consider limiting the proposed procedure to use in AUDIT testing rather than in enforcement action.
 - Such a limitation was previously included in the proposal.
 - It is highly recommended that the test procedure be very limited in scope until further validation is completed. For example:
- Limit the scope to non-viscous, water-based liquids only and add products and product categories as data collection and validation is done by a task group or individual jurisdictions.
- There may be a possibility for some semi-viscous petroleum products (light oils and fuels), but a thorough review of the associated ASTM procedures and documents must be completed before moving into that measurement area.
- ***Establish a Task Group under the L&R Committee.*** Assign this group the responsibility of collecting data to validate the use of density meters for specific product types and categories. Additional tasks might include the following:
 - Prioritize the product types and categories of highest interest to regulators and industry for validation.
 - Clearly define the uncertainty and an allowable difference or tolerance between the digital density meter and the current NIST HB 133.
 - Define the lower limits on density (example: $> 0.5 \text{ g/cm}^3$ to 2 g/cm^3) defined. Under the current proposal scenarios can occur where mathematically calculated volume values will not be sufficiently accurate.
 - Products of higher viscosities are a concern. “Viscous” needs to be clearly defined (with a value).
 - Criteria for determining an appropriate density meter (like range and minimum resolution) needs to be defined.
 - Reference material of known (liquid) quantities needs to be better conveyed in the procedure.
 - Clear guidance needs to be provided regarding the limitations of these devices, particularly with regard to their use in audit testing vs. enforcement action.
 - “Critical steps” needed to avoid enforcement errors need to be identified and clearly communicated.
 - The source of alpha values needs to be verified and cited in the procedure. An analysis of the likely uncertainty of locally calculated alpha values must be completed to verify impact on final calculated volumes.
 - Correction factors used with equipment need to be validated and means for security provided.

- The current language/procedure needs to be improved for cleaning the device between uses; a critical step that will affect results if not properly done and could vary by manufacturer.
- The use and limitations of an air pump needs to be qualified.
- ***Develop Guidance Documents.***
 - ***High-Level Steps for Validating Test Equipment.***
- NIST OWM can provide guidance and prioritization on key steps needed to validate such test equipment.
- Such guidelines can be used by individual Directors, work groups, or industry to conduct data collection and analysis to validate specific equipment and product types.
- ***NIST Field Manual.*** Determine the need for a NIST Field Manual to support and facilitate the use of Digital Density Meters for official inspections and testing.

The proposal previously included a barometer in equipment requirement and then explains that a barometer or other means of ascertaining atmospheric pressure may be used. It goes on to say the inspector's smart phone can be used if it has a pressure sensor.

- **Barometer (optional), or other device for obtaining the prevailing barometric pressure, with an accuracy of ± 3.0 mmHg – Note: Smartphones with a barometer application that uses the phone's pressure sensor, have a typical accuracy of ± 0.2 mmHg (Comment: barometer is not necessary if prevailing barometric pressure or altitude is known)**

OWM recommends that the Committee avoid the practice of allowing measuring sensors or unverified applications on state or inspector owned smartphones in testing and enforcement actions. Any measuring device involved the verification of the net quantity of contents of packaged goods should be evaluated for suitability and tested and calibrated by the state's metrology laboratory (or an accredited 3rd party testing laboratory.) There are other concerns as well but, if the inspector can obtain the current local barometric pressure as shown on the National Weather Service website at **National Weather Service** (NWS), which provides local weather conditions including barometric pressure by zip code search, that should be a more reliable and defensible resource than an unverified smartphone application that may have been dropped and damaged. If the Committee finds the NWS website does not provide the needed pressure reading within the required accuracy, then OWM recommends that the procedure be modified to require the inspector have a certified barometer available for use during the inspection. Removing reference to use of barometer was agreed upon by the submitter and removed.

Another important question is if the manufacturers provide adequate means for ensuring the accuracy and traceability of the built-in thermometers. This is because accurate temperature determinations are especially critical in making density determinations using a 2 mL sample. Detailed guidance on taking samples is also needed to assure accuracy. It is important that the sample be collected from the package using good measurement practice and that once collected it be measured promptly to ensure that the temperature does not vary outside of the prescribed range.

Section 3.X.2. Test Procedure highlights the importance of bringing the sample packages to a stable reference temperature. When OWM performed comparison tests years ago, the researcher found that the packages of product under test had to "soak" in a stable temperature environment for up to 24-hours before

a sample was taken. This is because the larger the quantity and container type (wall thickness and material for example) the longer the “soak” is required for product temperature to stabilize. When collecting sample packages from a location and transporting them to a laboratory for testing it is a good practice to carry them in a cooler to keep the samples from getting too hot (or too cold in the winter). For products that are too warm the use of a refrigerator or soaking watertight packages in a sink of cool water reduces the soak time but, those conveniences, may or may not be readily accessible in field locations. It is also essential that both the sample and the product temperature are representative of the total volume of product in the container not just the upper levels of the package near the container’s opening. Temperatures near the opening of the package can vary because warm room air enters the headspace and liquids in the neck of a thin plastic bottle often warm or cool a little quicker than the large volume of liquid lower in the package. Temperatures near the bottom of a package can also vary slightly due to the transfer of heat from the surface on which they are placed for testing. While these variations in temperature are minor and likely do not have a significant impact on volume, they do show that good measurement practices. inspectors will need to “soak” the packages at or near the reference temperature for an adequate period, take representative samples and temperature readings of the product in the package and ensure that measurements of density are taken promptly. These comments are provided to help the Committee in its consideration of this proposal. It also reflects the need for the development of guidance on sample collection and handling.

OWM joins with the submitter in highlighting the limitations of the types of liquids that can be tested using these devices. The submitter provided the following in Section 3.X. Scope:

This test procedure is suitable for measuring the density of homogenous liquids including dairy products such as milk and half & half; petroleum products such as fuel, motor oil, transmission fluid, paint thinner, brake fluid, diesel exhaust fluid, automotive coolant; pulp-free juices, wine, distilled spirits, water, mouth wash, alcohol, syrups, cooking oils, solvents, cleaning supplies, chemicals, as well as other viscous and non-viscous liquids. All products tested shall be free of suspended gas, air, sediment, suspended matter.

This was confirmed in testing that OWM had previously performed, it which recognized that most devices would not provide acceptable results if, the liquid had entrained air, the product was carbonated, or if it contained solids (e.g., flavored milks or juices, especially where shaking is recommended to mix the solids). Manufacturer’s instructions should be reviewed to determine if the meter under consideration is suitable for testing the products that the official intends to examine. Today’s meters will likely provide more accurate determinations of density over a wider range of products, but OWM recommends their performance be verified against NIST HB133 method to ensure both accuracy and repeatability. OWM also recommends that if these devices are to be evaluated comparisons should start with testing various products including viscous products listed in the proposal. Portable Digital Density meters could be accepted where their availability may provide the greatest return on the investment. OWM recommends anyone using these meters for use in package control read Guide 14 “Density Measurement” published in 2011 by the Organization of International Legal Metrology (OIML) [g014-e11.pdf \(oiml.org\)](#).

The submitter of this proposal had a Table X.1 “Viscosity Corrections of Common Materials”. What is the source of these values and what uncertainties are associated with the values?

In a separate comment the submitter reports that the “Current method in Section 3.4 Volumetric Test Procedures for Viscous Fluids – Headspace” does not work for oblong plastic bottles often used for motor oil.” OWM was either not aware of this issue or overlooked this statement in previous submittal of this proposal that came before the L&R Committee. OWM encourages the Committee to request that the submitter provide information, pictures, and test data on this issue to allow the Committee and OWM to investigate this type of problem. When OWM was developing training courses on package control several

oblong paint containers were tested using the headspace methods in NIST HB133 and those tests worked well and provided good test results. OWM does not dispute the submitter's statement but wishes to express the belief it merits further inquiry. Perhaps some amendments to the current headspace test methods can be made to make them more appropriate for use with oblong motor oil containers. OWM believes this effort will be justified because many jurisdictions will likely not purchase digital density meters for their inspectors due to their cost. Ensuring the existing test procedures are valid for use with different package designs and containers is essential.

Viscous and Non-Viscous Liquids

OWM encourages the Committee to solicit comments and suggestions to provide clearer terms and examples to identify product types which fall under the classification of a viscous and non-viscous liquid. Packaging and labeling regulations typically require that viscous liquids (such as ketchup, mustard) be sold by net weight not fluid measure so devices may have a narrower range of application in testing of packages typically inspected by weights and measures. The question of whether a product is viscous is a frequent question that we address in packaging and labeling inquiries. Over the years OWM has also received several requests from the food industry for help in better defining the range of products that fall under the definitions. Such an effort would help inspectors and packers alike. It would certainly help others to see the types of products that these instruments may be most suitable for use in testing. If the terms were better defined or a listing of typical products were provided to illustrate a consensus opinion on these categories it could be added to the Interpretations and Guidelines Sections of NIST Handbook 130 and become a valuable reference in the future by ensuring the same product is labeled by the same units of measure for all manufacturers.

Demonstration before the NCWM Laws and Regulations Committee

After a test procedure has been fully developed, the Committee may want to initiate a practice of having submitters demonstrate the complete procedure before the Committee (either in-person or video). This would allow for the procedure to be evaluated and better understood. OWM has found that several of the procedures adopted into NIST Handbook 133 at times omitted steps in the package inspection process, while others included specifications for test equipment that had to be fabricated. OWM also found there may not have been a design specification or drawings available for utilization by the states for ordering the equipment. In addition, we recommend that submitters refrain from creating active software spreadsheets. Some inspectors may not have the software, knowledge in using it, or availability of a computer at an inspection site.

Below is a listing of recommended changes from OWM to the Item Under Consideration. OWM recommends a number of changes to the proposal as reflected in Appendix X. OWM justification for the changes can be found in outlined boxes below the change.

NET-22.2 –Section 3.1.1 Test Methods and 3.X. Gravimetric Audit Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter.

Title within NCWM Publication 16

OWM recommends the following change to the title within NCWM Publication 16.

Current title: Section 3.X Volumetric Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter.

Corrected title: Section 3.1.1 Test Methods and 3.X. Gravimetric Audit Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter, as shown above.

The corrected title includes the proper section number; changes volumetric to gravimetric; and specifies this as an audit test.

Preamble under the Item Under Consideration:

Amend NIST Handbook 133, Checking the Net Contents of Packaged Goods, to modify Note 2 in Section 3.1.1. Test Methods and Section 3.X. Gravimetric Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter. Add an audit test procedure for 3.X. Gravimetric Test Procedure for Viscous and Non-Viscous Liquids by Portable Density Meter as follows:

OWM proposes modifying the preamble to the Item under Consideration as shown above, to change this from a compliance test procedure to an audit test procedure.

3.1. Scope

3.1.1. Test Methods

Notes:

- (2) When checking liquid products using a volumetric or gravimetric procedure for **density determination**, the temperature of the samples must be maintained at the reference temperature ± 2 °C (± 5 °F), **except when using Section 3.X. Gravimetric Audit Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter, where a correction factor is used to correct the density to the reference temperature.**

OWM proposes to:

- Add the term “density determination” to clarify that “temperature only” applies when performing density determinations.
- Add language “where a correction factor is used to correct the reference temperature” to clarify a portable digital density meter uses correction factors to correct the reference temperature.
- Add the language “density to the” reference temperature for clarification.
- Correct the title to new Section 3.X. that is referenced in Note 2.

OWM believes additional data and analysis is essential before proposing any such language for inclusion in NIST Handbook 130, even as an “audit procedure.”

OWM believes this additional data collection and analysis is best done by a TG. Based on that work, the TG can assess any limitations such as whether or not the procedure can be recommended for audit or compliance testing and proposed restrictions on product types.

3.X. Gravimetric Audit Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter

Use the following procedure for packages labeled in fluid volume.

Most portable digital density meters are suitable for measuring the density of homogenous liquids free of suspended gas, air, sediment, and suspended matter.

The suitability of a given meter for use with specific product types is determined based upon the specifications of the manufacturer, the intended application, and verification by a recognized laboratory.

Prior to using for audit testing for a specific commodity, the official's metrology laboratory must perform a comparison between the densities obtained between Sections 3.2. Gravimetric Test Procedure for Non-Viscous Liquids or 3.3. Volumetric Test Procedure for Non-Viscous Liquids, and the digital density meter to demonstrate repeatable, reliable, results.

The portable digital density meter shall be verified and approved in accordance with the manufacturer's and other recognized calibration procedures before being put into service. The portable digital density meter must only be used in a manner for which it was designed and calibrated. This device must be routinely recertified according to your agency's measurement assurance policies. Refer to NIST HB 130 Section 11 (h) of Weights and Measures Law and NIST HB 133 Chapter 1, Section 1.7. Good Measurement Practices for additional guidance.

Rather than listing specific product types, OWM recommends the language specify that the user needs to assess the suitability of a meter for use with a given product type based upon the manufacturer's specifications and testing by an authorized laboratory.

If viscous products are deemed suitable for use by the manufacturer, a maximum viscosity value needs to be defined and the viscosity of the product to be used with the density meter, the viscosity of the product must be verified. Currently the test procedure does not have steps for determining the viscosity of a product. Steps should be developed for using a viscometer.

OWM added language to clarify that before each use the official's metrology laboratory or recognized testing lab shall perform a comparison between the densities of the portable digital density meter and the current HB 133 test procedures to demonstrate repeatable, and reliable results. This is a critical step and is similar to verifying the accuracy of an inspector's scale before each use. Language was added referring the user to NIST HB130 Section 11 (h) of Weights and Measures Law and NIST HB133 Chapter 1, Section 1.7. Good Measurement Practices to emphasize that field standard must be verified before being put into service.

Guidance needs to be provided in the procedure describing how testing by the lab is to be conducted (e.g., number of samples, variation allowed, documenting and saving records of results...), and when and how to deem the device "calibrated and standardized".

Reorganized the language in 2022 NCWM Publication 16 for clarity; L&R-72 lines 36-39. Remove in its entirety L&R-72 lines 26 – 39 and L&R-73 lines 1-3.

This audit test procedure may be used as an alternative audit test procedure for the following Sections:

- **Section 3.2. Gravimetric Test Procedure for Non-Viscous Liquids.**
- **Section 3.3. Volumetric Test Procedure for Non-Viscous Liquids.**
- **Section 3.4. Volumetric Test Procedures for Viscous Fluids – Headspace.**

OWM restructured the layout of this paragraph to make it clearer to the user as to which sections within NIST HB 133 this audit test procedure can be used.

OWM removes several areas within the Item under Consideration that have a density requirement in their respective specifications. The procedure is a package checking procedure and it is not relative to the scope of this procedure. However, there is potential to be used in other others such as, determining density for “quality” and “the volume of bulk oil”.

This test procedure can also be a timesaver for screening products for proper fill and for quality control purposes.

3.X.1. Test Equipment

- **A scale that meets the requirements in Chapter 2, Section 2.2. “Measurement Standards and Test Equipment.”**

To verify the scale has adequate resolution, use the following steps.

- **Determine the density of the liquid.**
- **Using the density, convert the labeled volume to weight.**
- **Based on the labeled volume, determine the MAV using Table 2-6 “Maximum Allowable Variations for Packages Labeled by Liquid and Dry Volume” found in Appendix A.**
- **Using the density, convert the MAV from volume to weight.**
- **Next verify that the scale division is no larger than MAV/6 for the package size under test.**
- **The smallest graduation on the scale must not exceed the weight value for MAV/6.**

Example:

Assume the inspector is using a scale with 1 g (0.002 lb) increments to test packages labeled 1 L (33.8 fl oz) that have an MAV of 29 mL (1 fl oz). Also, assume the inspector finds that the weight of 1 L of the liquid is 943 g (2.078 lb).

Density: 1 L = 943 g (2.078 lb)

MAV: 29 mL (1 fl oz)

- **Convert the Density into mL and Fl oz:**

$$\frac{943 \text{ g} \div 1000 \text{ mL} = 0.943 \text{ g/mL}}{(2.078 \text{ lb} \div 33.8 \text{ Fl oz} = 0.0614 \text{ lb/fl oz})}$$

➤ Convert MAV from Volume (mL/fl oz) to Weight:

$$\frac{29 \text{ mL} \times 0.943 \text{ g/mL} = 27.347 \text{ g}}{(1 \text{ Fl oz} \times 0.0614 \text{ lb/fl oz} = 0.0614 \text{ lb})}$$

$$\text{MAV in Weight/6: } 27.347 \text{ g} \div 6 = 4.557 \text{ g} \quad 0.0614 \text{ lb} \div 6 = 0.0102 \text{ lb}$$

In this example, the 1 g (0.002 lb) scale division is smaller than the MAV/6 value of 4.557 g (0.010 lb) so the scale is suitable for making a density determination.

- Low pressure air pump (small) – (e.g., an aquarium air pump)
- Syringe (glass or plastic with a Luer fitting 5 mL or larger). The syringe should be free of any lubricating substances)
- Distilled or deionized water
- Cleaning agents (See Table 3.4. Cleaning Agents)
- Waste container
- Barometer for obtaining the prevailing barometric pressure, with an accuracy of $\pm 3.0 \text{ mmHg}$
- Thermometer for measuring air temperature with a tolerance of $\pm 1 \text{ }^{\circ}\text{C}$ ($2 \text{ }^{\circ}\text{F}$)
- Portable digital density meter meeting a minimum requirement of:

<u>Measuring Range</u>	
<u>Density</u>	<u>0 – 3 g/cm³</u>
<u>Temperature</u>	<u>0 – 40 °C (32 – 104 °F)^a</u>
<u>Viscosity</u>	<u>0 – 1000 mPa·s</u>
<u>Accuracy^b</u>	
<u>Density</u>	<u>0.001 g/cm³</u>
<u>Temperature</u>	<u>0.2 °C (0.4 °F)</u>
<u>Repeatability s.d.</u>	
<u>Density</u>	<u>0.0005 g/cm³</u>
<u>Temperature</u>	<u>0.1 °C (0.1 °F)</u>
<u>Resolution</u>	
<u>Density</u>	<u>0.0001 g/cm³</u>

<u>Temperature</u>	<u>0.1 °C (0.1 °F)</u>
<u>Sample Volume</u>	<u>2 mL</u>
<u>Sample Temperature</u>	<u>max. 100 °C (212 °F)</u>
<u>Footnotes</u> <u>a. Filling at higher temperatures possible.</u> <u>b. Viscosity < 100 mPa·s, density < g/cm³</u>	

OWM recommends that the lower limits on density (example: > 0.5 g/cm³ to 2 g/cm³) be defined. Under the current proposal scenarios can occur where mathematically calculated volume values will not be sufficiently accurate.

OWM also added the density and temperature of the “Resolution” as shown above.

3.X.2. Test Procedure

- 1. Follow Section 2.3.1. “Define the Inspection Lot.” Use a “Category A” sampling plan in the inspection. Select a random sample’**
- 2. Bring the packages and their contents to a temperature, between the reference and ambient temperatures**

OWM removed Step 3 which stated “packages may be gently rolled to mix contents. Avoid shaking liquids. Shaking some products such as flavored milk will entrap air that will affect density measurements”. The OWM language removes any reference to product types.

- 3. The portable digital density meter must be at ambient temperature or warmer to avoid causing condensation within the unit. If the density meter is warmer than the ambient temperature, condensation is not likely to occur. Condensation must be avoided and could cause digital density meter to malfunction and cause potential damage.**

OWM added language to clarify the conditions needed to avoid condensation for the digital density meter. Additional language is needed describing how to equilibrate the digital density meter to ambient temperature and how to determine when there is a temperature difference.

- 4. Using distilled or deionized water, validate the digital density meter per the manufacturer’s calibration instructions. The portable digital density meter shall be validated and if necessary calibrated prior to each unique commodity. The digital density meter shall be calibrated using a standard sample, within an allowable density range of ± 0.0005 g/cm³.**

OWM recommends using reference materials of known liquids to validate and calibrate the performance of the digital density meter with each product which the meter will be used to measure. This implies that only distilled or deionized water can or should be used. OWM added language that the portable digital density meter shall be “validated and if necessary calibrated” prior to use with each unique commodity. Calibrating and validating should be done prior to each

use “not once a day” until sufficient data can determine otherwise. This is similar to the approach that is used to maintain control over other test standards.

- 5. Ensure the portable digital density meter is clean prior to testing. Any residual liquid should be drained, and the unit should be flushed with a small amount of the sample to be tested. Flush and discard the sample two times before taking a measurement.**

OWM recommends that it be stated or noted that testing these products can result in significant coating of any surface that they contact. Verified cleaning to get back to the original verified calibration values between each sample test will be incredibly important. It needs to be emphasized that this is a critical step.

- 6. Follow the manufacturer’s instructions to select the correct method, when using a meter with built in correction factors, and measure the density of the sample using the built-in pump or syringe. Fill the sample slowly and gently. If gas or air bubbles are present drain sample and refill. If the correction factor is not known, refer to step 9.**

Note: Use of a syringe may be desirable to allow sample specimen to achieve ambient temperature prior to introduction of specimen into testing cell and for viscous specimens.

OWM recommends that guidance and a step should be added on how to determine and verify the accuracy of any built-in stored values. This is critical in that these values will directly impact the measurement result. Correction factors used with the equipment need to be validated and means for security provided.

Transferring the product via a syringe can be a source of error. Language should be added to the “Note” as to how to transfer the product from the syringe to the portable digital density meter.

- 7. Once the portable digital density meter has stabilized (maintained reading ± 0.2 °C (± 0.5 °F) for 10 seconds) record density and temperature as indicated on instrument.**

OWM recommends that it be clarified what is being stabilized, the density value, temperature, or both. The statement above reads seems to imply that only temperature is important. Both the density value and temperature must be stable within “some” window.

- 8. Apply the density coefficient of expansion (Alpha) also known as the density correction factor, to correct to the reference temperature. See Table X.2. Viscosity Corrections of Common Materials. if the Alpha correction is not known, then the factor can be calculated using the below formula.**

OWM recognizes that the NCWM Publication 15 (2022) contained Table X.1. titled “Density Coefficient Factor (Alpha)” which was removed by the L&R Committee due to the values within the table not being validated. The use of this table would be useful to assist an inspector in saving time by not having to calculate the value. Prior to adding such a table, the source of alpha values must be verified and cited in the procedure.

OWM changed the title of Table X.2. “Reference Temperatures of Liquids” to correct the title name to “Table X.2. Viscosity Corrections of Common Materials

The source of alpha values needs to be verified and cited in the procedure. An analysis of the likely uncertainty of locally calculated alpha values must be completed to verify impact on final calculated volumes.

OWM moved the “Note” stating “Some digital density meters may be programmed to automatically apply this correction” to Step 10.

Calculating the Temperature Coefficient Alpha

$$\text{Temperature coefficient Alpha} = \left| \frac{\rho^1 - \rho_2}{T^1 - T_2} \right|$$

ρ_1 density at temperature T_1

ρ_2 density at temperature T_2

T_1 temperature at initial measurement

T_2 temperature at second measurement

Notes:

- **If the density correction factor is not known but the volume correction factor is known, the density correction factor can be calculated from the volume correction factor using the following formula.**
- **Density Temperature Factor Alpha = Absolute Value of Beta × Density.**

- 9. Apply the viscosity correction if viscosity > 85 centipoise at 21 °C (70 °F) by adding the value in Table X.1. Density Measurement to your density measurement. After this correction, this value is the density of the substance in in the vacuum at the prescribed reference temperature.**

OWM recommends stating that these alpha values must be verified and provide guidance on how to do so. This applies to steps 10 and 11. We need to understand what the source of the uncertainty of these values are, their traceability, and the impact small errors will have on the final measurement.

OWM recommends the accuracy of the alpha value be better defined. If the alpha value is determined using this method, to what uncertainty/accuracy must it be measured? It should be clarified that an average of no less than 3 measurements should be used with an uncertainty sufficiently small than the resulting error in the sample density is less than the MAV/6.

Note: Some digital density meters may be pre-programmed to automatically apply the viscosity. See Table X.2. Viscosity Corrections of Common Materials

- 10. Apply the apparent density correction by applying one of the following steps:**

(1) multiplying the density by 0.999; or

(2) multiplying the density by the Apparent Mass Factor from Table X.3.; or

(3) calculate apparent density by using the following:

Converting True Density into Apparent Density

The apparent density is defined as:

$$Paap = \frac{P_{true, sample} - P_{air}}{1 - \frac{P_{air}}{8.0 \text{ g/cm}^3}}$$

Where:

$Paap$ = apparent density of the sample

P_{steel} = 8.0 g/cm³

P_{air} = true density of air

$P_{true, sample}$ = true density of the sample

The apparent density is smaller than the true density and can be calculated from the true density considering the buoyancy of the sample in air and the weight and density of a reference weight in steel.

*** P_{air} = true density of air as calculated from equation in Table X.1. Density Measurement.**

After application of this factor or calculation, the new value is density of the substance in air.

11. Drain the instrument and repeat Steps 6–10 on a second specimen of the same package for verification of first measurement.

OWM would like to emphasize that in Step 3 where the portable digital meter is cleaned, you are starting from the same zero condition for the vibrating tube. If a new sample is introduced without ensuring that the last sample tested is completely gone, any remaining deposits in the tube WILL impact the measurement of the new sample. This will be especially true for viscous materials but will be true for even liquids with low viscosity. The remaining material will just be less impactful for the low viscosity liquids. Either way, errors will exist unless you return to the completely clean condition. This is a critical step which must be emphasized.

12. Compare the two readings, they must agree within 0.0003 g/cm³. Calculate the average density of the two specimens from the sample. If the difference of two readings is greater than 0.0003 g/cm³, discard results and repeat testing of sample. Air or undissolved gas will cause erroneous measurement errors. The user of the shall always visually inspect for undissolved gas in the measurement tube for a valid test.

13. Repeat testing for the second (or subsequent) package(s) of the lot.

14. Calculate the Average Product Density of sample 1 and 2. The two results must agree within 0.0005 g/cm³. If the difference between the densities of the two packages exceeds 0.0005 g/cm³, use the volumetric procedure in Section 3.3. “Volumetric Test Procedure for Non-Viscous Liquids.”

15. Determine the Average Used Dry Tare Weight of the sample according to provisions of Section 2.3.5. “Procedures for Determining Tare.”

16. Calculate the “nominal gross weight” using the following formula:

$$\text{Nominal Gross Weight} = (\text{Average Product Density [in weight units]}) \times (\text{Labeled Volume}) + (\text{Average Used Dry Tare Weight})$$

17. Weigh the remaining packages in the sample.

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

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

$$\text{Package Error in Volume} = \text{Package Error in Weight} \div \text{Average Product Density Per Volume Unit of Measure}$$

20. The digital density meter must be stored clean. After final use of the day or extended period of time, the instrument shall be drained and cleaned following the manufacturer’s recommended cleaning procedures and using two cleaning agents. The first cleaning agent removes sample residue, and the second cleaning agent removes the first cleaning agent. See Table X.4. Cleaning Agents for examples of cleaning agents recommended by a digital density meter manufacturer.

NOTE: If the unit will be immediately used to measure another sample of similar composition, the unit may be drained and flushed with the new sample three times before the next analysis.

OWM recommends that language be added on how to verify the unit is “clean”. Cleaning is a critical step. The current language and procedure will need to be improved for cleaning the device between uses; a critical step that will affect results if not properly done and recognize that this could vary by manufacturer. It should also be noted that the instruments instruction manual provides guidance as well.

21. Periodically, connect the portable digital density meter to a low-pressure air source after a thorough cleaning, such as an aquarium air pump, to dry the unit’s measurement cell. This step is a better way to ensure no buildup of deposits in the measuring cell and no long-term drift of the instrument calibration. Bypassing the internal pump may be necessary to dry measuring cell. See instrument instruction manual.

OWM added language provided clarification to this step by providing the following additional language:

“Periodically, connect digital density meter to a low-pressure air source after thorough cleaning, such as an aquarium air pump, to dry the unit’s measurement cell. This step is a better way to ensure no buildup of deposits in the measuring cell and no long-term drift of the instrument calibration. Bypassing the internal pump maybe necessary to dry measuring cell. See manufacturers instrument instruction manual.”

Language should also be added to clarify that at the end of use, the unit must be thoroughly cleaned before being stored.

3.X.3. Evaluation of Results

Follow the procedures in Chapter 2, Section 2.3.7. “Evaluate for Compliance” to determine lot conformance.

<u>Table X.1. Density Measurement</u>		
<u>Calculate the density of air at the temperature of test using the following equation</u>		
$\rho_{\text{air, g/mL}} = 0.001293[273.15/T][P/760]$		
<u>Where:</u>		
<u>T = temperature, K, and</u>		
<u>P = barometric pressure, torr.</u>		
<u>°C</u>	<u>mmHg</u>	<u>d_{air}, g/mL</u>
<u>15.56</u>	<u>760</u>	<u>0.001223314</u>

<u>Table X.2. Viscosity Corrections of Common Materials</u>		
<u>Material</u>	<u>Viscosity in Centipoise</u>	<u>Correction g/cc</u>
<u>Water</u>	<u>1 cP</u>	
<u>Milk</u>	<u>3 cP</u>	
<u>SAE 10 Motor Oil</u>	<u>85–140 cP</u>	<u>0.0003</u>
<u>SAE 20 Motor Oil</u>	<u>140–420 cP</u>	<u>0.0006</u>
<u>SAE 30 Motor Oil</u>	<u>420–650 cP</u>	<u>0.0007</u>
<u>SAE 40 Motor Oil</u>	<u>650–900 cP</u>	<u>0.0007</u>
<u>Castrol Oil</u>	<u>1,000 cP</u>	<u>0.0008</u>
<u>Karo Syrup</u>	<u>5,000 cP</u>	<u>0.0008</u>

<u>Table X.2. Viscosity Corrections of Common Materials</u>		
<u>Honey</u>	<u>10,000 cP</u>	<u>0.00085</u>

<u>Table X.3. Apparent Mass Factor</u>					
<u>Elevation, ft</u>	<u>sea level</u>	<u>1500</u>	<u>3000</u>	<u>4500</u>	<u>6000</u>
<u>Barometer, mmHg</u>	<u>760</u>	<u>720</u>	<u>680</u>	<u>640</u>	<u>600</u>
<u>density, g/cc</u>	<u>Apparent Mass Factor</u>				
<u>0.500</u>	<u>0.9977</u>	<u>0.9979</u>	<u>0.9980</u>	<u>0.9981</u>	<u>0.9982</u>
<u>0.600</u>	<u>0.9981</u>	<u>0.9982</u>	<u>0.9983</u>	<u>0.9984</u>	<u>0.9985</u>
<u>0.700</u>	<u>0.9984</u>	<u>0.9985</u>	<u>0.9986</u>	<u>0.9987</u>	<u>0.9988</u>
<u>0.800</u>	<u>0.9986</u>	<u>0.9987</u>	<u>0.9988</u>	<u>0.9989</u>	<u>0.9989</u>
<u>0.900</u>	<u>0.9988</u>	<u>0.9989</u>	<u>0.9989</u>	<u>0.9990</u>	<u>0.9991</u>
<u>1.000</u>	<u>0.9989</u>	<u>0.9990</u>	<u>0.9991</u>	<u>0.9991</u>	<u>0.9992</u>
<u>1.100</u>	<u>0.9991</u>	<u>0.9991</u>	<u>0.9992</u>	<u>0.9992</u>	<u>0.9993</u>
<u>1.200</u>	<u>0.9991</u>	<u>0.9992</u>	<u>0.9992</u>	<u>0.9993</u>	<u>0.9993</u>
<u>1.300</u>	<u>0.9992</u>	<u>0.9993</u>	<u>0.9993</u>	<u>0.9993</u>	<u>0.9994</u>
<u>1.400</u>	<u>0.9993</u>	<u>0.9993</u>	<u>0.9994</u>	<u>0.9994</u>	<u>0.9994</u>
<u>1.500</u>	<u>0.9993</u>	<u>0.9994</u>	<u>0.9994</u>	<u>0.9994</u>	<u>0.9995</u>
<u>Elevation or prevailing barometric pressure at the location of measurement.</u>					

OWM questions why the table stops at density 1.500. An earlier a statement was made that the process is good for density values from 0 to 3 g/mL. There should be a note to address this difference and instructions about what to do if a value greater than 1.5 is measured.

<u>Table X.4. Cleaning Agents</u>		
<u>(Examples of cleaning agents recommended by digital density meter manufacturers. Verify the proper cleaning agent for the digital density meter used.)</u>		
<u>Commodity</u>	<u>Cleaning Liquid 1</u>	<u>Cleaning Liquid 2</u>
<u>Petroleum products</u>	<u>Toluene, petroleum naphtha, petroleum ether, n-nonane, cyclohexane</u>	<u>Ethanol</u>
<u>Battery acid</u>	<u>Tap water</u>	<u>Ultra-pure (bi-distilled or deionized) water</u>

<u>Table X.4. Cleaning Agents</u>		
<u>(Examples of cleaning agents recommended by digital density meter manufacturers. Verify the proper cleaning agent for the digital density meter used.)</u>		
<u>Liquid soap and detergent, shampoo</u>	<u>Tap water</u>	<u>Ultra-pure (bi-distilled or deionized) water</u>
<u>Salad dressing, mayonnaise</u>	<u>Petroleum naphtha, dish washing agent in water</u>	<u>Ethanol</u>
<u>Suntan lotion</u>	<u>Tap water</u>	<u>Ethanol</u>
<u>Spirits</u>	<u>Tap water</u>	<u>Ultra-pure (bi-distilled or deionized) water</u>
<u>Grape juice, syrup</u>	<u>Warm tap water</u>	<u>Ultra-pure (bi-distilled or deionized) water</u>
<u>Milk*</u>	<u>Tap water, enzymatic lab cleaner</u>	<u>Ultra-pure (bi-distilled or deionized) water</u>
<u>*NOTE: Do not introduce ethanol or other alcohols into instrument without first flushing all milk products from instruments.</u>		

OWM added the following parenthetical to the title: “(Examples of cleaning agents recommended by digital density meter manufacturers. Verify the proper cleaning agent for the digital density meter used.)”

This table should be verified for all known digital density meter manufacturers’; however some meters may not be compatible with some solvents so compatibility must be verified before use.

OWM recommends that this proposal be Developing or Assigned to a Task Group that is created to develop this item for many of the reasons cited above.

Summary of Discussions and Actions:

At the 2022 NCWM Interim Meeting, the Committee assigned Voting status for this item. The Committee believes the latest proposal is fully developed, addressed previous concerns and is therefore ready for a vote. Additionally, the Committee believes this item will provide a tool to Weights and Measures Officials that will improve efficiency during inspections while maintaining current testing accuracy levels.

Note: The Committee removed Table X.1. Density Coefficient Factor (Alpha) because it has not been validated. The Committee spoke to the original submitter, and they agreed that the proposal can still go forward as a Voting item without the table; it is not necessary for it to be included for field use.

The Committee received additional information on this item from NIST OWM after the meeting stating the item is being reviewed by NIST OWM. NIST OWM submitted proposed changes and comments to the Committee for their consideration. These proposed changes and comments will be provided online to membership before the annual meeting.

Regional Association Reporting:

Western Weights and Measures Association

At the 2021 WWMA Annual Meeting, Mr. Hayes provided testimony for support of this Item, it is resubmitted from a past Item with updated language. Mr. Hayes indicated there are three volunteers who are testing this procedure for validation. He believes the process and technology are sound and is twice as accurate as the current method for some products. If approved this method would significantly decrease inspection times. Mr. Ivan Hankins (Iowa) asked for clarification on how this will replace the way tests are currently conducted. Mr. Hayes responded saying this method will reduce tests times which would be better for field personnel. Mr. Hayes expanded that he has tested this in dairies, with the new method taking minutes and the old method taking hours. Mr. Kevin Schnepf (CDFA-DMS) supported the continuing development of this Item but asked to see the aggregated data that supported the proposal. He also asked how often the unit needed to be calibrated, for the different products outlined in the proposal. Mr. Hayes responded that the data is being compiled into a report and provided information on the procedures on how to validate the calibration. Mr. Hayes clarified on how to calibrate the equipment. Ms. Lisa Warfield (NIST OWM) supports the development of this test procedure and applauds Mr. Ronald Hayes for working on this. OWM submitted an analysis and agrees these devices may be used in audit testing. Ms. Warfield made statements that highlighted items provided in the OWM analysis supporting documentation. Mr. Hayes responded to items in the OWM analysis, particularly barometric pressure by stating that this can be corrected for by using a correction factor listed in the agenda item. Ms. Lisa Warfield stated that the word approximate must be removed from all tables. Mr. Hayes replied that he believed that this had been accomplished but it is still documented in Table X.2. Approximate Viscosities of Common Materials. Mr. Hayes also replied that he is looking for collaboration and continued support from NIST in this matter.

The Committee recommends that this Item be Assigned. The Committee recommends that L&R National Chair create a Task Group headed by Mr. Hayes that can work on gathering and assessing data to advance this proposal for use as an audit tool and eventually an enforcement tool.

Central Weights and Measures Association

CWMA 2021 Interim Meeting, Mr. Hayes commented that he rewrote the method from its original version, and Table X.1. (untitled) which list the product, $\alpha/^{\circ}\text{C}$, Typical Density at 20°C , g/cm^3 , and reference temperature is currently under review. He also mentioned the ASTM test methods that have been in the marketplace for several years, and he believes with the changes in Table X.1. and a few additional changes, he believes the item will be ready for voting status. He is asking for volunteers to collect data using this instrument. Ms. Lisa Warfield (NIST OWM) commented that the NIST analysis captures areas for improvement and supports the development of this item as an audit procedure. Mr. Mike Harrington (Iowa) commented that he supports this as a voting item rather than be assigned to a task group to collect data. The Committee believes the item is fully developed by the original submitter and supports further testing by states and recommends Voting status.

At the 2022 CWMA Annual Meeting, Mr. Ron Hayes the item's submitter asked Mr. Upschulte to read an update during Open Hearings. Mr. Hayes believes this proposal is fully developed and has been working with NIST to address their suggestions and concerns. Ms. Warfield commented that the item should be deescalated to Developing status or as an Assigned item to a task group through NCWM to collect data to verify accuracy and consistency of measuring devices. She stated that the use of this equipment has great potential to facilitate testing in package checking as well as other weights and measures inspection areas but that for it to be used in regulatory action it is essential to validate the traceability of measurements made using the equipment. Lastly, Ms. Warfield stated that the title to this section is incorrect and should read

3.X. Gravimetric Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter. Mr. Charlie Stutesman (Kansas) commented that if the item is deescalated, the Committee should recommend what still needs developed. He believes if the submitter feels the item is ready for voting status, it should be voted up or down. On the other hand, he would also support the formation of a task group at the national level. Mr. Ivan Hankins (Iowa) commented that he agrees with Mr. Stutesman and believes the Voting status should remain on this item.

The Committee discussed this item at length and believes digital density meters are currently and will continue to be useful devices in weights and measures inspections. The Committee believes this item can be strengthened by increasing data for validation and thinks assigning the item to a task group could be beneficial to finish development of this item.

Southern Weights and Measures Association

At the 2021 SWMA Annual Meeting no comments were heard during open hearings. NIST OWM provided a written analysis documenting their support of the development of this item. The Committee recommends this as a Developing item. Studies should continue until such time that sufficient evidence can be provided showing that these devices provide density values equivalent to those measured found using existing test methods.

Northeastern Weights and Measures Association

At the 2021 NEWMA Interim Meeting, Mr. Hayes commented that this is a complete rewrite of a previously submitted proposal that the NCWM L&R Committee withdrew. This method, which has been used for several years in the liquid fuels and lubricants industry. He indicated the item is ready for Voting status. He will continue to communicate with OWM to work through the comments they included in their analysis of the item and will have all the edits and additions completed by the 2022 NCWM Interim Meeting. Mr. David Sefcik (NIST OWM) commented that NIST supports continued development of this item and to work with Mr. Hayes to resolve any remaining questions. Mr. Sefcik further commented that these devices are being widely used in other countries in the verification of the net quantity of contents by legal metrology programs, but the U.S. has been slow to adopt them. He believes it would be valuable for states to do additional testing to provide sufficient evidence that these devices can provide density values equivalent to those found using existing NIST HB 130 test methods. This will also help move this from an audit test procedure to an actual test procedure. The Committee recommends the item be given Assigned status to an NCWM Task Group to elevate this to a Voting Item. Ms. Warfield (NIST OWM) commented that Mr. McGuire should request from the NCWM Chair to form a TG to develop this item. The Committee concurs that development of this item should be done through a TG.

At the NEWMA 2022 Annual, Mr. Sefcik noted that the current item under consideration was provided to the National L&R 1 day before the interim. Significant updates and changes were done on this item. In addition, at the Interim in January, the L&R Committee made additional modifications. Recognized and commended the submitter and for working tirelessly to make changes on this item prior to the NCWM (2022) Interim Meeting. However, it is OWM's belief that this item requires more time for the members to review and evaluate it. NIST OWM and we believe others, need additional time to adequately consider the most recent version. This is a highly technical procedure! It is too important of an item not to spend the time to properly evaluate it. OWM asked its lab metrology staff to assist with a review of the proposal to help determine and assess any technical gaps. Of greatest concern is the limited testing analysis provided by the submitter comparing the digital density meter to the current NIST Handbook 133 volumetric test procedure. Data on only 4 items were submitted which is insufficient to statistically validate results to

ensure the test procedure will be defensible for use in official inspections. He reminded the NEWMA L&R Committee they had recommended previously a task group be formed for further development and OWM echoes this recommendation.

Mr. Willis (New York) echoed Mr. Sefcik's comments and recommendation. Noted that he found it confusing when reading the proposed item. The item needs more review and time to consider and recommends caution moving forward to properly vet the item. Mr. John Gaccione (Westchester County, New York) a question and comment, "When was this submitted?" Mr. Sefcik responded that it will be just before the 2022 NCWM Interim meeting and the National L&R Committee recommended additional changes. Mr. Gaccione agreed with the comments of Mr. Sefcik and Mr. Willis stating additional time is needed to evaluate the item.

No additional comments during the open hearing. NEWMA L&R Committee recommends this item be Assigned to a newly formed portable digital density meter TG.

FLR - UNIFORM FUELS AND AUTOMOTIVE LUBRICANTS REGULATION

FLR-20.5 W Section 2.1.2.(a). Gasoline-Ethanol Blends

Source: American Petroleum Institute

Purpose and Justification:

More comprehensively align NIST Handbook 130 Uniform Fuels and Automotive Lubricants Regulations with the U.S. EPA's rule that grants a 1 psi vapor pressure waiver to E15 for summertime (June 1 to September 15) and to help ensure consumers receive a consistent E15 blend. The proposed changes to HB 130 reflect the important information that an inspector will need to ensure that E15 is properly blended and that the potential harm to the consumer and the environment will be minimized.

Aligning Handbook 130 with the important parts of the U.S. EPA rule that grants a 1-psi vapor pressure waiver during the summer months for E15 is important to ensure that E15 has the correct vapor pressure during these months and provides comprehensive information to aid in ensuring compliant E15 gasoline is provided to consumers. FLR Sections 2.1.2. Gasoline-Ethanol Blends. and 1.23. Ethanol Flex Fuel are modified to address these issues.

Amendments to FLR paragraph 2.1.2.(a), specify that the range of ethanol in the gasoline-ethanol blends qualifying for the 1-psi waiver shall only be from 9 to 15 volume percent as per 40 CFR 80.27(d). The change is unambiguous and does not require the inspector to access the federal rule to understand the applicable range of the waiver.

EPA Final rule, "Modifications to Fuel Regulations To Provide Flexibility for E15; Modifications to RFS RIN Market Regulations" June 10, 2019, www.govinfo.gov/content/pkg/FR-2019-06-10/pdf/2019-11653.pdf.

U.S. EPA "Modifications to Fuel Regulations to Provide Flexibility for E15; Modifications to RFS RIN Market Regulations: Response to Comments." June 10, 2019. Added in total with an example provided below.

www.regulations.gov/document?D=EPA-HQ-OAR-2018-0775-1174

p. 53 (Response to comments) E15 is allowed to be blended at blender pumps as long **as only certified components** are used (sic) Cases where blender pumps introduce uncertified components into gasoline continue to be illegal and may result in fuel that exceeds gasoline quality standards. Parties that blend uncertified components into previously certified gasoline are considered fuel manufacturers under the regulations at 40 CFR part 79 and refiners under 40 CFR part 80.

[emphasis added]

The following quotes from the U.S. EPA proposal provide additional information:

- EPA provided the following comments in its final rule on the recent E15 1-psi waiver related to Section G, 2.1.2. and 1.23.:
 - “[U.S. EPA] note that for E15 produced at blender pumps using E85 made with natural gas liquids, **use of the deemed to comply provision to demonstrate compliance would not be available.** This is because the RVP of natural gas liquids can be as high as 15.0 psi and even a small amount of natural gas liquids could cause the gasoline portion of the blend to not comply with the applicable RVP limitations established under CAA sec. 211(h), which is required under CAA sec. 211(h)(4)(A) to be deemed in compliance. Parties that make E15 at a blender pump using **E85 made with previously certified gasoline can take advantage of the ‘deemed to comply’ provision** and associated affirmative defense at 40 CFR 80.28 if all applicable requirements in 80.28 are met.” (84 FR 27008)

(Emphasis added)

- “As discussed in the [U.S. EPA] proposal, E15 made at blender pumps is often made with certified E10 (or CBOB) and E85 (made with denatured fuel ethanol and uncertified hydrocarbon blendstocks, i.e., natural gas liquids). While data is limited, we believe that approximately 50 percent of stations offering E15 make E15 in this manner. (84 FR 27010)
- **40 CFR 80.27(d) *Special provisions for alcohol blends.***
 - (1) Any gasoline which meets the requirements of paragraph (d)(2) of this section shall not be in violation of this section if its Reid vapor pressure does not exceed the applicable standard in paragraph (a) of this section by more than one pound per square inch (1.0 psi).
 - (2) In order to qualify for the special regulatory treatment specified in paragraph (d)(1) of this section, gasoline must contain denatured, anhydrous ethanol. **The concentration of the ethanol, excluding the required denaturing agent, must be at least 9% and no more than 15% (by volume) of the gasoline.** The ethanol content of the gasoline shall be determined using one of the testing methodologies specified in § 80.47. The maximum ethanol content shall not exceed any applicable waiver conditions under section 211(f) of the Clean Air Act.
 - (3) **Each invoice, loading ticket, bill of lading, delivery ticket and other document which accompanies a shipment of gasoline containing ethanol shall contain a legible and conspicuous statement that the gasoline being shipped contains ethanol and the percentage concentration of ethanol.**

(Emphasis added)

- **40 CFR 80.28(g) Defenses.**

(8) In addition to the defenses provided in paragraphs (g)(1) through (6) of this section, in any case in which an ethanol blender, distributor, reseller, carrier, retailer, or wholesale purchaser-consumer would be in violation under paragraph (b), (c), (d), (e), or (f) of this section, as a result of gasoline which contains between 9 and 15 percent ethanol (by volume) but exceeds the applicable standard by more than one pound per square inch (1.0 psi), the ethanol blender, distributor, reseller, carrier, retailer or wholesale purchaser-consumer **shall not be deemed in violation if such person can demonstrate, by showing receipt of a certification from the facility from which the gasoline was received or other evidence acceptable to the Administrator, that:**

(i) **The gasoline portion of the blend complies with the Reid vapor pressure limitations of § 80.27(a); and**

(ii) **The ethanol portion of the blend does not exceed 15 percent (by volume); and**

(iii) **No additional alcohol or other additive has been added to increase the Reid vapor pressure of the ethanol portion of the blend.**

In the case of a violation alleged against an ethanol blender, distributor, reseller, or carrier, if the demonstration required by paragraphs (g)(8)(i), (ii), and (iii) of this section is made by a certification, it must be supported by evidence that the criteria in paragraphs (g)(8)(i), (ii), and (iii) of this section have been met, such as an oversight program conducted by or on behalf of the ethanol blender, distributor, reseller or carrier alleged to be in violation, which includes periodic sampling and testing of the gasoline or monitoring the volatility and ethanol content of the gasoline. Such certification shall be deemed sufficient evidence of compliance provided it is not contradicted by specific evidence, such as testing results, and provided that the party has no other reasonable basis to believe that the facts stated in the certification are inaccurate. **In the case of a violation alleged against a retail outlet or wholesale purchaser-consumer facility, such certification shall be deemed an adequate defense for the retailer or wholesale purchaser-consumer, provided that the retailer or wholesale purchaser-consumer is able to show certificates for all of the gasoline contained in the storage tank found in violation, and, provided that the retailer or wholesale purchaser-consumer has no reasonable basis to believe that the facts stated in the certifications are inaccurate.**

(emphasis added)

Table 3. Summary of Recommendations							
FLR-20.5 – Section 2.1.2.(a). Gasoline-Ethanol Blends							
	V	D	W	A	I	Note*	Comments
Submitter			✓				At the 2022 NCWM Interim the submitter changed their recommendation from Voting to Withdrawn.
OWM					✓		
WWMA					✓		
NEWMA					✓		

Table 3. Summary of Recommendations							
FLR-20.5 – Section 2.1.2.(a). Gasoline-Ethanol Blends							
	V	D	W	A	I	Note*	Comments
SWMA					✓		
CWMA			✓				
NCWM Interim			✓				
*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:

2.1. Gasoline and Gasoline-Oxygenate Blends

2.1.1. Gasoline and Gasoline-Oxygenate Blends (as defined in this regulation). – Shall meet the latest version of ASTM D4814, “Standard Specification for Automotive Spark-Ignition Engine Fuel” except for the permissible offsets for ethanol blends as provided in Section 2.1.2. Gasoline-Ethanol Blends.

- (a) The maximum concentration of oxygenates contained in gasoline-oxygenate blends shall not exceed those permitted by the EPA under Section 211 of the Clean Air Act and applicable waivers.

(Added 2009) (Amended 2018)

2.1.2. Gasoline-Ethanol Blends. – When gasoline is blended with denatured fuel ethanol, the denatured fuel ethanol shall meet the latest version of ASTM D4806, “Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel,” and the blend shall meet the latest version of ASTM D4814, “Standard Specification for Automotive Spark-Ignition Engine Fuel,” with the following permissible exceptions:

- (a) The maximum vapor pressure shall not exceed the latest edition of ASTM D4814, “Standard Specification for Automotive Spark-Ignition Engine Fuel,” limits by more than 1.0 psi for blends **containing at least 9 and not more than 15 volume percent ethanol** from June 1 through September 15 as allowed by EPA per 40 CFR 80.27(d).

(Amended 2016, ~~and~~ 2018, 2019 **and 20XX**)

Section 2.1. NOTE: The values shown above appear only in U.S. customary units to ensure that the values are identical to those in ASTM standards and the Environmental Protection Agency regulation.

(Added 2009) (Amended 2012 and 2016)

NIST OWM Detailed Technical Analysis:

No comment by the Office of Weights and Measures.

Summary of Discussions and Actions:

On January 17, 2020, Mr. Prentiss Searles (API) submitted modified language for Section 2.1.2.(a). Gasoline-Ethanol Blends. There were over ten letters received in opposition for MOS-20.2. Documentation for Dispenser Labeling Purposes and FLR 20.3. Section 1.23. Ethanol Flex Fuel language. Many were opposed due to its duplication with the EPA compliance program for this subject.

At the 2020 NCWM Interim Meeting, Mr. Searles did provide a presentation and requested from the floor that Section 2.1.2.(a) Gasoline-Ethanol Blends be considered as a Voting Item and he volunteered to chair a workgroup to further develop the remaining items. Many rose in support and opposition of this block of items. It was addressed by Ms. Warfield (NIST) that FALS was tasked by the Committee in July 2019 to review the EPA language and its impact on the regulations within the Fuels Regulations within Handbook 130. FALS Chair Mr. Bill Striejewski remarked that he has created a focus group but needs additional clarification from the Committee on what specifically they should address.

During Committee work session they concurred that Section 2.1.2.(a). Gasoline-Ethanol Blends will proceed as a Voting item. All the remaining items will be merged into Block 4 and be assigned to FALS for further development.

At the 2020 NCWM Annual Meeting, several comments were heard both in opposition and supporting the item from both industry and regulators. Those opposed included Mr. Mike Harrington (Iowa), Mr. Charlie Stutesman (Kansas), Mr. Jim Willis (New York), Mr. Doug Rathbun (Illinois), Mr. Chuck Corr (Corr Consulting), Ms. Kristy Moore (Growth Energy), and Mr. Kevin Adlaf (ADM). Those opposed voiced concern over the newly implemented EPA streamlining rules. Questions were raised if the changes would affect this item or if the item is now necessary? Other concerns were heard that the language would be moving backwards, that having the percentages listed could cause issues in the future if the EPA changes them again. The current language is effective, and this type of work is done in a lab not the field where the requirements could easily be looked up. Those supporting the item included Mr. Searles, Mr. Joe Sorena (Chevron), and Mr. Russ Lewis (Marathon Petroleum). The supporting comments included that this just adds back what was not included during the emergency amendment for the 2020 Handbook. Mr. Harrington (Oregon) supporting as a Voting item or leave it on the agenda for another cycle. It was decided that further review was needed, and the item was downgraded to Informational status.

At the 2021 NCWM Interim Meeting, the Committee was informed that after a multiyear process the EPA Streamlining Rule was signed in late 2020. The rule has drawn considerable interest and discussion with various stakeholders. Many would like to wait for the streamlining rules and a review of the NIST Handbook regulations. Some believe that language is specified in the CFR and the streamlining rule does not affect this. Some felt this item should be withdrawn in its entirety. A few comments were heard that were like those from annual meeting hearings in both support and opposition to of the item. A neutral comment was heard from Mr. Elliott (Washington) challenging for theoretical examples showing the harm of having or not having the proposed language added back in. The Committee deemed this item to be fully developed and felt this should be voted on its own merit.

At the 2021 NCWM Annual Meeting, FALS Chair Mr. Striejewski provided an overview report to the Committee stating this item was discussed at some length during yesterday's FALS meeting. FLR-20.5 added language to Section 2.1.2(a) relevant to the summertime 1 psi vapor pressure waiver for E15. However, on July 2, 2021, the Washington, District of Columbia Court of Appeals offered an opinion which struck down the waiver, saying in brief that the US EPA had overstepped their authority in granting the waiver in 2019. There were varying views within FALS members as to how this Item should proceed at the Conference. Mr. Corr (C. Corr Consulting) spoke on behalf of a Developing status, as work is required to addressing RBOB limitations. The FALS did recommend to the Committee to de-escalating this item from its current voting status but did not have a consensus recommendation for a new status.

Mr. Prentiss Searles (API) requested that this item be deescalated until the court matter is sorted out. Mr. Searles informed membership that on July 2, 2021, the U.S. Court of Appeals for the D.C. Circuit issued an opinion that ruled on EPA's rule in 2019 that extended the E10 Reid Vapor Pressure (RVP) waiver to 15 percent volume ethanol blends (E15) during the summer driving season (June 1 - September 15). The court determined that the Clean Air Act does not authorize the RVP waiver to be extended to E15 and vacated the portion of the rule asserting that E15 is substantially similar to E10. In short, the court overturned EPA's rule on the E15 waiver. Consequently, by the time the court procedures take place they will not have a mandate to vacate until after the summer driving season is over. Mr. Searles recommend this get assigned back to FALS to keep them engaged. Ms. Moore (Growth Energy) and Mr. Mike Harrington (Iowa and on behalf of the CWMA) recommended this item be withdrawn. An industry member and NEWMA recommended this be deescalated to an Assigned Status.

The Committee deescalated this item from Voting status to Informational and will be responsible for this Item. The Committee will review any court actions on this item and determine a status at the 2022 NCWM Interim Meeting.

At the 2022 NCWM Interim Meeting, no one spoke in favor the item and several Industry Associations spoke against the item, supporting its withdrawal. Several regulators stated that the language as it appears in the handbook is correct requested this item be withdrawn. The Committee withdrew this item under consideration in its entirety.

Regional Association Reporting:

Western Weights and Measures Association

At the 2021 WWMA Annual Meeting, the Committee heard comments in support of keeping this Item Informational pending the outcome of litigation. The Committee also heard comments to update the CFR references to 40CFR 1090.215(b).

The Committee recommends this item remain Informational pending the outcome of litigation, with the following language change:

2.1.2. Gasoline-Ethanol Blends. – When gasoline is blended with denatured fuel ethanol, the denatured fuel ethanol shall meet the latest version of ASTM D4806, “Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel,” and the blend shall meet the latest version of ASTM D4814, “Standard Specification for Automotive Spark-Ignition Engine Fuel,” with the following permissible exceptions:

- (a) The maximum vapor pressure shall not exceed the latest edition of ASTM D4814, “Standard Specification for Automotive Spark-Ignition Engine Fuel,” limits by more than 1.0 psi for blends **containing at least 9 and not more than 15 volume percent ethanol** from June 1 through September 15 as allowed by EPA per ~~40 CFR 80.27(d)~~. **40CFR1090.215(b)**.

(Amended 2016, ~~and~~ 2018, 2019 **and 20XX**)

Section 2.1. NOTE: The values shown above appear only in U.S. customary units to ensure that the values are identical to those in ASTM standards and the Environmental Protection Agency regulation.

(Added 2009) (Amended 2012 and 2016)

Central Weights and Measures Association

At the 2021 CWMA Interim Meeting, Mr. Charlie Stutesman (Kansas) commented that this item should be withdrawn. Ms. Kristy Moore (Growth Energy) concurs that the language as it appears in the Handbook today is accurate. Mr. Mike Harrington (Iowa) also recommends this item be withdrawn. Ms. Tamara Paik (Marathon) commented that API asks that this item be kept as an informational item and allows it to move forward depending on the outcome of the court determination. Ms. Moore further commented that the proposal is misleading. After considering the comments during open hearings, the Committee believes this item should be withdrawn.

At the 2022 CWMA Annual Meeting, there were no comments heard. The Committee recommended this as a Voting Item.

Southern Weights and Measures Association

At the 2021 SWMA Annual Meeting, Mr. Prentiss Searles (API) provided a brief update. He recommends this item to remain Informational pending the outcome of litigation. NIST OWM provided written analysis recommending the item remain Informational. The Committee recommends this item to remain Informational.

Northeastern Weights and Measures Association

At the 2021 NEWMA Interim Meeting, Mr. Chuck Corr (Iowa Renewable Fuels Association) stated he is opposed to the content statement related to ethanol in this section and stated a citation reference only is more appropriate. Mr. Mike Sikula (New York) commented that he is unsure of the purpose of this item. Mr. John McGuire (New Jersey) commented that this proposal appeared on the 2021 NCWM Annual L&R Agenda as an Informational item and the Committee is awaiting a determination from the U.S. Court of Appeals. The Committee recommends this item remain on the agenda as an Informational item until the legal process is finished.

At the 2022 NEWMA Annual Meeting, there were no comments made during open hearings.

OTH – OTHER ITEMS

OTH-22.1 A Uniform Regulation for E-commerce Products

Source: NCWM Packaging and Labeling Subcommittee (PALS)

Purpose and Justification:

Provide an update of the activities of PALS which works on direction from and reports to the L&R. This is to propose a new regulation for Handbook 130 covering sites and products which are sold through e-commerce.

While e-commerce continues to grow and evolve, most people, entities and regulators are trying to extrapolate existing requirements to these sites and products involved with e-commerce – with varying degrees of success. This regulation is intended to be a foundation for e-commerce regulation, focusing just on basic requirements such as the name of the item the net quantity of the item, and the price of the item.

Some may argue that existing regulations are good enough and NCWM should wait for other Federal Agencies to take the lead. Companies may need time in order to change their websites or products to comply.

OWM Executive Summary for OTH-22.1 – Uniform Regulations for E-commerce Products							
OWM Recommendation: We concur that this item has merit and should be assigned to PALS.							
OWM supports the continued work and development of this item through PALS. OWM had submitted suggestions, edits, formatting changes, and clarifications on May 24, 2022, to PALS for this item including development of a table of contents, clarification of application and purpose of the regulation, a suggestion to provide more uniformity in like terms used, suggestions to provide relevant examples in certain sections for clarification, revisiting the requirements for bulk sales, among others.							
OWM also recommends PALS consider revising the of title of the regulation so that it is more reflective of the content of the regulation beyond labeling (e.g., pricing, unit pricing, graphic illustrations.)							
OWM agrees that stakeholder outreach is needed. OWM will assist PALS in reaching out to stakeholders once they are determined by PALS. PALS Chair submitted an updated proposal dated April 12, 2022, which can be found on the NCWM website under supporting documents.							

Table 3. Summary of Recommendations							
Oth-22.1 – Uniform Regulations for E-commerce Products							
	V	D	W	A	I	Note*	Comments
Submitter	✓						
OWM				✓			
WWMA				✓			
NEWMA				✓			
SWMA				✓			
CWMA					✓		
NCWM				✓			

Table 3. Summary of Recommendations							
Oth-22.1 – Uniform Regulations for E-commerce Products							
	V	D	W	A	I	Note*	Comments
*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:

A. Uniform Labeling Regulation for E-commerce Products

1. Background

The Uniform Labeling Regulation for E-commerce Products Regulation was adopted during the 1XXth Annual Meeting of the National Conference on Weights and Measures (NCWM) in 20XX. Reporting to the Conference, the Packaging and Labeling Subcommittee stated:

The National Conference has adopted a model e-commerce labeling regulation for guidance to those states authorized to adopt such a regulation under provisions of their weights and measures laws. Since so much of the work of weights and measures officials in the field concerns consumer commodities and food, drug and cosmetic products, uniformity between the Federal (FDA and FTC) regulations, the Uniform Packaging and Labeling Regulation and any model regulations to be adopted by this Conference would provide significant benefit to both the U.S. consumer and manufacturer. The consumer benefit of having clear and consistent information on all product descriptions would allow for easier and more informed comparisons between similar and different products. The manufacturer benefit would be less complexity in ensuring labeling meets the Federal regulations.

The process of amending and revising this Regulation will be a continuing one in order to keep it current with practices in the e-commerce industry and make it compatible with appropriate federal regulations.

Nothing contained in this regulation should be construed to supersede any labeling requirement specified in federal law.

2. Status of Promulgation

(Table of Contents will be developed)

Uniform Labeling Regulation for E-commerce Products

Preamble

The purpose of this regulation is to provide accurate and adequate information for consumer products subject to FPLA requirements sold via e-commerce as to the identity and quantity of contents so that purchasers can make price and quantity comparisons.

Section 1. Application

This regulation shall apply to products and transactions which occur when purchasers are not present to purchase a consumer or non-consumer product in person.

This regulation specifically establishes requirements for websites, phone applications and other sites/programs which offer products for sale and permit consumers to make purchases without being physically present to inspect and select individual products and commodities in-person.

This regulation also applies to the product information which must accompany the products the purchaser receives after purchase from a website, phone application or site from which the purchase occurred.

This regulation 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 or products.**
- (c) shipping containers and inner wrappings for products or commodities purchased in quantity by manufacturers, packers, or processors in industrial proportions, or to wholesale or retail distributors who subsequently distribute or offer for sale products and commodities.**
- (d) 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.**

Section 2. Definitions

The following definitions apply to this regulation:

2.1. E-commerce – The process of offering for sale and transacting sales of one or more consumer commodities or non-consumer products when the customer is not physically present at the point of purchase. e-commerce includes the sale of consumer commodities or non-consumer products on-line through websites and phone applications, catalog sales and sales transacted through 3rd parties to select and/or deliver consumer commodities to consumer residences.

2.2. E-commerce Product – A consumer commodity or non-consumer product offered for sale through e-commerce.

2.3. E-commerce Site – The site, program or interface through which customers make product purchases. An E-commerce Site may allow users to choose between similar products/commodities or provide a purchase option. Product comparisons may be permitted on a single e-commerce site or may require the purchaser to make product comparisons between one or more e-commerce sites. An e-commerce site may be a manufacturer website, a retail website, a delivery service site, phone applications offered by manufacturers, retailers, delivery services, 3rd party providers or other interface in which the customer is physically not present to inspect and select products.

2.4. Customer – A person or entity purchasing an e-commerce product for their own use, the use of another person, or a business.

2.5. Package. – Except as modified by Section 1, the term “package,” whether standard package or random package, means any consumer commodity or non-consumer product which is:

- (a) enclosed in a container or wrapped in any manner in advance of wholesale or retail sale; or**
- (b) whose weight, measure or count has been determined in advance of wholesale or retail sale. An individual item or lot of any commodity or non-consumer product on which there is marked a selling price, or for which there is represented to be a pre-determined selling price, based on an established price per unit of weight, count or measure shall be considered a package (or packages).**

2.6. E-commerce Package – Any consumer commodity or non-consumer product with a defined net quantity been which is sold through e-commerce and is:

- (a) enclosed in a container or wrapped in any manner in advance of on-line sale; or**
- (b) not enclosed prior to on-line sale and wrapped or packaged for shipment or delivery after sale, or**
- (c) not enclosed prior to on-line sale and does not require wrapping or packaging for delivery after sale.**

2.7. E-commerce Standard Package – A consumer commodity sold or offered for sale via e-commerce where lots or shipments of the same commodity have identical net content declarations.

2.8. E-commerce Random Quantity Package – A consumer commodity or non-consumer product sold or offered for sale via e-commerce wherein lots or shipments have varying net contents. The net quantity of contents for a random quantity package is fully defined once the consumer’s order is fulfilled by the seller or distributor.

2.9. Sale from Bulk. – The term “sale from bulk” means the sale of commodities when the quantity is determined at the time of sale.

2.10. E-commerce Bulk Product – A consumer commodity or non-consumer product sold or offered for sale via e-commerce and the product is not packaged at time of purchase. An e-commerce bulk product may or may not be wrapped upon its sale to facilitate shipment or delivery.

2.11. Consumer Commodity – An article, product or commodity offered for sale in packaged or bulk form in terms of weight, measure or count that is customarily produced or distributed for consumption or use by individuals for the purpose of consumption, personal care or personal use in services ordinarily in or around the household or for personal possessions.

2.12. E-commerce Consumer Commodity – A consumer commodity or product sold or offered for sale in bulk or packaged form via e-commerce which is an article, product or commodity intended for use by, produced for or customarily used by an individual or individuals for purposes of consumption or performance of services ordinarily rendered within a household.

2.13. E-commerce Non-Consumer Product – A product sold or offered for sale via e-commerce which is not a consumer commodity and is intended for use by a business or institution for industrial use or wholesale distribution. An E-commerce Non-Consumer product is typically sold by one business to another business.

2.14. E-commerce Non-Consumer Package – An e-commerce non-consumer product that is sold or offered for sale which has been packaged prior to sale on an e-commerce site.

2.15. E-Commerce Package Label. – Any written, printed, or graphic matter affixed to, applied to, attached to, blown into, formed, molded into, embossed on, or contained within a package containing any consumer commodity, for purposes of branding, identifying, or giving any information with respect to the commodity or to the contents of the package.

2.16. E-commerce Receipt. – A complete record of a transaction involving the purchase of one or more e-commerce products purchased at the same time from the same e-commerce site. e-commerce receipts may be either electronic or paper as described in this regulation.

2.17. SI or SI Units – SI or SI Units means the International System of Units as established in 1960 by the General Conference on Weights and Measures (CGPM) and interpreted or modified for the United States by the Secretary of Commerce

2.18. U.S. Customary Units – Units based upon the inch, foot, gallon, and the pound commonly used in the United States of America. US Customary units include units for weight, liquid measure, linear measure, area measure, volume measure and dry measure. The NIST Handbook 130 Uniform Packaging and Labeling Regulation details use of U.S. Customary units for consumer packages.

2.19. Person – The term “person” means either singular or plural and shall include any individual, partnership, company, corporation, association, or society engaged in e-commerce activity.

Section 3. Required Declarations for E-commerce Sites Offering E-commerce Consumer Commodities and E-commerce Non-Consumer Products for Sale

Consumer commodities are being purchased through e-commerce sites whereby the customer makes purchase decisions based upon the product information provided on the website, phone application or other remote means. Because customers make e-commerce purchase decisions based on available information provided on these sites or venues, customers should expect the information provided to be sufficiently complete in order to make informed purchase decisions and accurate value comparisons. To that end, certain price and FPLA-required label information must be provided to purchasers on the E-commerce site where a product is offered for sale. The elements of the FPLA information required by this regulation are also present in regulations promulgated by other Federal agencies such as EPA, FTC and the Department of Agriculture.

Non-Consumer Products are also purchased through use of e-commerce sites. In order for a site user to make value comparisons and a purchase decision, certain product information must be present for a purchaser to make informed product selections and purchases.

3.1. E-commerce Site Requirements for Standard Packages. – The following shall apply to e-commerce sites on which standard packages are offered for sale:

- (a) Declaration of Identity. – The product declaration of identity shall appear on the e-commerce site in a conspicuous and prominent location. Wherever applicable, the product brand name shall be combined with the declaration of identity. This information shall be provided separately from and in addition to any picture or image of the product.
- (b) Declaration of Net Quantity. – The declaration of net quantity shall appear on the e-commerce site in a prominent location and in a conspicuous manner which clearly communicates the package net quantity. This information shall be provided separately from and in addition to any picture or image of the product. This information shall be provided in both U.S. customary and SI units unless the product is exempt from the Fair Packaging and Labeling Act requirements and meets existing labeling requirements for that product.
- (c) Product Price. – The price of the product shall appear on the e-commerce site in a conspicuous and prominent location. Added cost information (if any) for shipping, delivery, taxes, and other services shall be provided to the customer prior to the completion of check-out and payment.
- (d) Product Photo or Product Representation. – The e-commerce site shall provide a photo or visual representation of the product to help consumers confirm the identity of the item they intend to purchase. While a product photo or representation may depict certain required information, required information shall appear separately from the picture/representation. Any information provided in the picture/product representation shall not conflict with information required by this regulation.
- (e) Brand Name or Product Manufacturer. – The e-commerce site shall provide the name of the manufacturer, distributor or the brand of any product offered for sale, where applicable.

3.2. E-commerce Site Requirements for Random Quantity Packages. – The following shall apply to e-commerce sites on which random content packages are offered for sale:

- (a) Declaration of Identity. – The product declaration of identity shall appear on the e-commerce site in a conspicuous and prominent location. Wherever applicable, the product brand name shall be combined with the declaration of identity. This information shall be provided separately from and in addition to any picture or image of the product.
- (b) Unit Price. – The unit price of the product shall appear on the e-commerce site in a conspicuous and prominent location. This information shall be provided separately from and in addition to any picture or image of the product.
- (c) Net Quantity Information. – For each product offered for sale in random quantity packages, a range of potential product net quantities and an estimated maximum possible item net weight shall be displayed to customers on the e-commerce site in a conspicuous and prominent location.
- (d) Product Price. – For each product offered for sale in random quantity packages, a range of potential product prices and an estimated maximum possible item price shall be displayed to customers on the e-commerce site in a conspicuous and prominent location. Added cost information (if any) for shipping, delivery, taxes, and other services shall be provided to the customer prior to the completion of check-out and payment.

- (e) Product Photo or Product Representation. – The e-commerce site shall provide a photo or representative visual representation of the product to help customers confirm the identity of the item they intend to purchase. While a product photo or representation may depict certain required information, required information shall appear separately from the picture/representation. Any information provided in the picture/product representation shall not conflict with information required by this regulation.
- (f) Brand Name or Product Manufacturer. – The e-commerce site shall provide the name of the manufacturer, distributor or the brand when it is different from the person or entity responsible for the website.

3.3. Bulk Product E-commerce Site Requirements. – The following shall apply to e-commerce sites on which products from bulk are offered for sale:

- (a) Declaration of Identity. – The bulk product declaration of identity shall appear on the e-commerce site in a conspicuous and prominent location. Brand name (if applicable) may be combined with the declaration of identity. This information shall be provided separately from and in addition to any picture or image of the bulk product.
- (b) Unit Price. – The unit price of the product shall appear on the e-commerce site in a conspicuous and prominent location. This information should be provided separately from and in addition to any picture or image of the bulk product.
- (c) Net Quantity Information. – An estimated minimum and/or maximum possible product net quantity, if applicable to any product offered for sale from bulk, shall be provided on the e-commerce site in a conspicuous and prominent location.
- (d) Product Price – For products offered for sale limited to minimum and/or maximum per-order quantities, an estimated minimum or maximum possible product price, where applicable, shall be provided to the customer on the e-commerce site in a conspicuous and prominent location. Added cost information (if any) for shipping, delivery, taxes, and other services shall be provided to the customer prior to the completion of check-out and payment.
- (e) Product Photo or Product Representation. – The e-commerce site shall provide a photo or visual representation of the bulk product to help customers confirm the identity of the item they intend to purchase. While a product photo or representation may depict certain required information, required information shall appear separately from the picture/representation. Any information provided in the picture/product representation shall not conflict with information required by this regulation.

3.4. Non-Consumer Product E-commerce Site Requirements. – The following shall apply to e-commerce sites on which non-consumer products are offered for sale:

- (a) Packaged Non-Consumer E-commerce Products. – If the non-consumer product is packaged as a standard package, the requirements of Section 3.1. E-commerce Site Requirements for Standard Packages shall apply. If the non-consumer product is packaged as a random content package, the requirements of Section 3.2. E-commerce Site Requirements for Random Quantity Packages shall apply.

- (b) E-commerce Products Purchased from Bulk. – If the non-consumer product is not packaged at the time of purchase, the requirements for Section 3.3. Bulk Product E-commerce Site Requirements shall apply.**

Section 4. Required Information Upon Product Delivery: Requirements for Standard or Random Quantity Packages Purchased from an E-commerce Site

4.1. Standard Package E-commerce Delivery Requirements. – The information below shall be provided within, upon or together with each standard package delivered to / received by a customer in an e-commerce transaction. Products which are labeled to be compliant with the ULPR meet the requirements for Declaration of Identity, Net Quantity and Responsibility. Products which are not labeled for retail sale as prescribed by the UPLR must provide the following:

- (a) Declaration of Identity. – The product declaration of identity shall be prominently placed on the product or package or on written materials attached to or within the package. Where multiple products are delivered concurrently, it shall be clear which information applies to each product. Although the declaration of identity may also appear on a receipt or invoice, a receipt or invoice alone is not an adequate means to provide this information.**
- (b) Declaration of Net Quantity – The declaration of net quantity must be prominently placed on the product or package or on written materials attached to or within the package. Where multiple products are delivered concurrently, it must be clear which information applies to each product. Although the declaration of net quantity may also appear on a receipt or invoice, a receipt by itself is not an adequate means to provide this information.**
- (c) Declaration of Responsibility. – The declaration of responsibility, including name and address, must be prominently placed on the product or package or on written materials provided attached to or within the package. Where multiple products are delivered concurrently, it must be clear which information applies to each product.**
- (d) Product Price. – The total price of the product shall be provided to the customer, either on a receipt or invoice or by appearing upon, within, or with the delivered standard package.**

4.2. Random Quantity Package E-commerce Delivery Requirements. – The following shall apply to the information provided within, upon, or together with each random quantity package delivered to/received by a customer in an e-commerce transaction:

- (a) Declaration of Identity. – The product declaration of identity shall be prominently placed on the product or package or on written materials attached to or within the package. Where multiple products are delivered concurrently, it shall be clear which information applies to each product. Although the declaration of identity may also appear on a receipt or invoice, a receipt or invoice alone is not an adequate means to provide this information.**
- (b) Unit Price. – The unit price of the product shall be provided to the customer, either on a receipt or invoice, by marking or labeling upon the package(s) or by other written documentation included with the delivered product and must be in the same units of measure as displayed on the website.**
- (c) Net Quantity Information. – The actual net quantity of the product shall be prominently marked or displayed on the product or on written materials attached to or within the package**

and must be in the same units of measure as displayed on the website. Where multiple products are delivered concurrently, it shall be clear which information applies to each product. Although the declaration of net quantity may also appear on a receipt or invoice, a receipt or invoice alone is not an adequate means to provide this information.

- (d) Product Price. – The actual charged price for the product must be prominently marked upon the product or be recorded and displayed on documentation within the package. Where multiple products are delivered concurrently, it shall be clear which information applies to each product. The product receipt shall provide the purchaser with cost information including the cost of the product and any applicable additional charges. Although the price information may also appear on a receipt or invoice, it must also be provided as specified above with the product package.
- (e) Declaration of Responsibility. – The declaration of responsibility, including name and address, shall be prominently marked upon the product or package or recorded and displayed on documentation within the package. Where multiple products are delivered concurrently, it shall be clear which information applies to each product. Although the declaration of responsibility may also appear on a receipt or invoice, a receipt or invoice alone is not an adequate means to provide this information.

4.3. Bulk Product E-commerce Delivery Requirements – The following shall apply to the information provided on or with bulk products delivered to / received by a customer in an e-commerce sale:

- (a) Declaration of Identity. – The bulk product declaration of identity shall be provided to the customer on a transaction receipt. A Declaration of Identity may also be marked upon or on written documentation attached to the bulk product, but this does not preclude it from being displayed on the receipt.
- (b) Unit Price. – The unit price of the product shall be provided to the customer on the transaction receipt. The Unit Price may also be displayed upon the product or its packaging, but this does not preclude it from being recorded on the receipt.
- (c) Declaration of Net Quantity. – The actual net quantity of the product delivered shall be provided to the customer on the transaction receipt. Actual net quantity shall be documented for the transaction as the customer was not present when the product(s) was selected. The Declaration of Net Quantity may be displayed upon the product or its packaging, but this does not preclude it from being recorded on the receipt.
- (d) Product Price. – The total price charged for the product shall be provided to the customer on the transaction receipt.

4.4. Non-consumer Product E-commerce Delivery Requirements. – The following shall apply to the information provided on or with a non-consumer product delivered to / received by a customer in an e-commerce sale:

- (a) Packaged Non-Consumer E-commerce Products. – If the non-consumer product is packaged as a standard package, the requirements in Section 4.1. Standard Package E-commerce Delivery Requirements shall apply. If the non-consumer product is packaged as a random

quantity package, the requirements of Section 4.2. Random Quantity Package E-commerce Delivery Requirements apply.

- (b) E-commerce Products Purchased from Bulk – If the non-consumer product is not packaged at the time of purchase, the requirements for Section 4.3. Bulk Product E-commerce Delivery Requirements shall apply.**

Section 5. Unit Pricing Requirements on E-Commerce Sites for Products Offered for Sale

5.1. Unit Pricing for E-commerce Products – A unit price is required for bulk and random weight products offered for sale on e-commerce sites.

5.2. Unit Price information for standard packages offered for e-commerce is optional.

5.3 When providing required or optional unit pricing information, the following requirements apply:

- (a) The unit price must be consistent with the required method of sale for the product.**
- (b) Units of Measure. – The declaration of the unit price of a particular commodity in all package sizes offered for sale in a retail establishment shall be uniformly and consistently expressed in terms of:**
- (1) Price per kilogram or 100 g, or price per pound or ounce, if the net quantity of contents of the commodity is in terms of weight.**
 - (2) Price per liter or 100 mL, or price per dry quart or dry pint, if the net quantity of contents of the commodity is in terms of dry measure or volume.**
 - (3) Price per liter or 100 mL, or price per gallon, quart, pint, or fluid ounce, if the net quantity of contents of the commodity is in terms of liquid volume.**
 - (4) Price per individual unit or multiple units if the net quantity of contents of the commodity is in terms of count.**
 - (5) Price per square meter, square decimeter, or square centimeter, or price per square yard, square foot, or square inch, if the net quantity of contents of the commodity is in terms of area.**
- (c) Exemptions – The following exemptions from unit pricing requirements above are permitted:**
- (1) Small Packages. – Commodities shall be exempt from these provisions when packaged in quantities of less than 28 g (1 oz) or 29 mL (1 fl oz) or when the total retail price is 50 cents or less.**
 - (2) Single Items. – Commodities shall be exempt from these provisions when only one brand in only one size is offered for sale in a particular retail establishment.**
 - (3) Infant Formula. – For “infant formula,” unit price information may be based on the reconstituted volume. “Infant formula” means a food that is represented for special**

dietary use solely as a food for infants by reason of its simulation of human milk or suitability as a complete or partial substitute for human milk.

(4) Variety and Combination Packages. – Variety and Combination Packages as defined in Section 2.9 and Section 2.10 in the Uniform Packaging and Labeling Regulation ^[Section XX NOTE] shall be exempt from these provisions.

Section XX NOTE: See “Uniform Packaging and Labeling Regulation

5.4. The unit price must be in consistent units for similar products. For unit pricing to facilitate effective consumer cost comparison, similar products must be unit priced in the same manner (unit of measure). If different brands or package sizes of the same consumer commodity are expressed in more than one unit of measures, the e-commerce site must unit price the items consistently. For example, some juices may be labeled by the fluid ounce, pint, quart and gallon. Unit pricing similar liquid products by the fluid ounce, others by the pint and still others by the gallon does not facilitate value comparison. E-commerce sites must determine the most effective units for ensuring value comparison of similar products with varying product sizes.

5.5. When unit pricing, the e-commerce site must be to the nearest cent when a dollar or more. If the unit price is under a dollar, it must be listed to the tenth of a cent or the whole cent, but both methods cannot be used simultaneously. The e-commerce site must accurately and consistently use the same method of rounding up or down to compute the unit price to the whole cent.

5.6. The unit price information must be presented adjacent to the product price information. When present, unit price information is to be provided in a manner so that it is adjacent to all other product pricing information.

Section 6. Declaration of Quantity– E-commerce Products

6.1. E-commerce Site Requirements – Any e-commerce package offered for sale on an e-commerce site shall be displayed or represented on the e-commerce site with a separate Declaration of Quantity statement which details the quantity of product that the package contains in metric (SI) and US Customary units of measure and/or in count consistent with the requirements for packages intended for retail sale prescribed in the Uniform Packaging and Labeling Regulation (Reference appropriate UPLR section(s)). The Declaration of Quantity must be accurately displayed in relevant units to facilitate value comparison. The declaration shall not be misleading or deceptive.

6.2. E-commerce Package Requirements – E-commerce standard, random quantity packages, and pre-packaged non-consumer packages delivered to customers shall have an accurate Declaration of Net Quantity on the package label. In the event one of these e-commerce packages does not have a label, the Declaration of Net Quantity shall appear upon or in documentation within the package.

6.3. E-commerce Bulk or Unpackaged Product Requirements – E-commerce bulk and non-consumer products which are not packaged prior to purchase, at the time of delivery to the customer, must be accompanied by an accurate Declaration of Net Quantity on a printed transaction receipt. This printed receipt shall include the product identity, unit price, net quantity, and actual charged price in a clear and non-misleading manner for all bulk or non-packaged products. Electronic receipts may be used in place of paper receipts if the information required for a paper receipt is printed upon or contained in each individual bulk and/or non-packaged product. Electronic receipts

may be provided in place of printed receipts if the customer specifies an electronic receipt is preferred.

6.4. Measurement Systems – The International System of Units (SI), known as the metric system and the U.S. customary system of weights and measures are recognized as proper systems to be used in the declaration of quantity for e-commerce products. Units of both systems may be combined in a dual declaration of quantity. Numerical count is permitted for products when the product statement of identity and numerical count are fully informative of the product’s contents.

6.5. Largest Whole Common Unit. – This regulation requires that the quantity declaration for similar types and sizes of products be in terms of the largest whole common unit. With respect to a particular product offered for sale, the declaration shall be in terms of the largest common whole unit of weight or measure with any remainder expressed:

(a) SI Units. – in decimal fractions of such largest whole unit.

(b) U.S. Customary Units. –

(1) in common or decimal fractions of such largest whole unit; or

(2) where appropriate, the next smaller whole unit or units with any further remainder in terms of common or decimal fractions of the smallest unit present in the quantity declaration.

6.6. Terms: Weight, Liquid Measure, Dry Measure, or Count. – The declaration of the quantity of a particular E-commerce product shall be expressed in terms of liquid measure if the commodity is liquid, in terms of dry measure if the commodity is dry, in terms of weight if the commodity is solid, semisolid, viscous, or a mixture of solid and liquid, or in terms of numerical count. However, if there exists a firmly established general consumer usage and trade custom with respect to the terms used in expressing a declaration of quantity of a particular commodity, such declaration of quantity may be expressed in its traditional terms if such traditional declaration gives accurate and adequate information as to the quantity of the commodity.

6.7. SI Units: Mass, Measure. – A declaration of quantity for an e-commerce product or package shall be expressed in units according to the provisions of the UPLR (add appropriate reference), the applicable Method of Sale Regulation (add appropriate reference) or the applicable regulation(s) of another regulatory agency. Generally, declarations are to follow the requirements detailed below:

(a) in units of mass shall be in terms of the kilogram, gram, or milligram;

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

(c) in units of linear measure shall be in terms of the meter, centimeter, or millimeter;

- (d) in units of area measure shall be in terms of the square meter, square decimeter, square centimeter or square millimeter;
- (e) in units of volume other than liquid measure shall be in terms of the liter and milliliter, except that the terms cubic meter, cubic decimeter, and cubic centimeter will be used only when specifically designated as a method of sale;
- (f) Shall be expressed in units so that the numerical declaration is greater than the number one “1” and less than number one thousand “1000”. While a common unit is required for similar products of similar size, when the product size range results in numerical declarations which are less than one or exceed 1000, then added units are permitted.

Examples:

500 g, not 0.5 kg

1.96 kg, not 1960 g

750 mL, not 0.75 L

750 mm or 75 cm, not 0.75 m

- (g) SI declarations should be shown in three digits except where the quantity is below 100 grams, milliliters, centimeters, square centimeters, or cubic centimeters where it can be shown in two digits. In either case, any final zero appearing to the right of the decimal point need not be shown; and the declaration of net quantity of contents shall not be expressed in mixed units.

Example:

1.5 kg, not 1 kg 500 g

- (h) Only those symbols as detailed in Section 6.5. Largest Whole Common Unit may be employed in the quantity statement on a package of commodity.

6.8. U.S. Customary Units: Weight, Measure. – A declaration of quantity for an e-commerce product or package shall be expressed in units according to the provisions of the UPLR (add appropriate reference), the applicable Method of Sale Regulation (add appropriate reference) or the applicable regulation(s) of another regulatory agency. Generally, declarations are to follow the requirements detailed below

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

- (d) in units of area measure shall be in terms of the square yard, square foot, or square inch;
- (e) in units of volume measure shall be in terms of the cubic yard, cubic foot, or cubic inch; and
- (f) in units of dry measure, shall be in terms of the United States bushel of 2150.42 in³, or peck, dry quart, and dry pint subdivisions of the bushel.
- (g) Any generally accepted symbol and abbreviation of a unit name may be employed in the quantity statement on a package of commodity

Section 7. Declaration of Identity: E-commerce Products

7.1. E-commerce Site Requirements – Any e-commerce package offered for sale on an e-commerce site shall be represented or displayed on the e-commerce site with a separate Declaration of Identity statement which details the specific product that the package contains in ordinary terms expressed in the English language. The declaration of identity needs to be specific enough to distinguish between similar types and varieties of products. A manufacturer brand name is not a statement of identity. The declaration shall not be misleading or deceptive.

7.2. The identity declaration shall be in terms of:

- (a) the name specified in or required by any applicable federal or state law or regulation or, in the absence of this;
- (b) the common or usual name or, in the absence of this;
- (c) the generic name or other appropriate description, including a statement of function (such as “cleaning powder”).

7.3. E-Commerce Package Requirements – The same Declaration of Identity shall appear on the product label, on the product, attached to the product or within the product package in a clear and non-misleading fashion when delivered to the purchaser.

Section 8. Declaration of Responsible Party: E-commerce Products

8.1. E-commerce Packages. – Any e-commerce package offered for sale on an e-commerce site which is not owned or operated by the person responsible for the manufacture, packaging, labeling or distributing of the e-commerce package shall specify conspicuously either 1) on the label of the e-commerce package or 2) on documentation within the e-commerce package if there is no label, marking of the name and address of the product manufacturer, packer, or distributor. The name shall be the actual corporate name, or, when not incorporated, the name under which the business is conducted. The address shall include street address, city, state (or country if outside the United States), and ZIP Code (or the mailing code, if any, used in countries other than the United States); however, the street address may be omitted if it is listed in any readily accessible, well-known, widely published, and publicly available resource, including but not limited to a printed directory, electronic database, or website.

If a person manufactures, packs, or distributes a commodity at a place other than his principal place of business, the label may state the principal place of business in lieu of the actual place where the commodity was manufactured or packed or is to be distributed, unless such statement would be

misleading. Where the commodity is not manufactured by the person whose name appears on the label, the name shall be qualified by a phrase that reveals the connection such person has with such commodity, such as “Manufactured for and packed by _____,” “Distributed by _____,” or any other wording of similar import that expresses the facts.

8.2. E-commerce Bulk Products and Select Random Quantity Packages. – All responsibility for bulk e-commerce products and e-commerce random quantity packages bearing no Declaration of Responsible Party information shall be that of the person or entity responsible for the e-commerce site.

8.3. E-commerce Site Requirements. – The operator of an e-commerce site offering products for sale shall comply with at least one of the following requirements regarding each product offered for sale:

- (a) The e-commerce site shall provide the name and address of the product manufacturer, packer or distributor.
- (b) The e-commerce site shall provide the name and website address of the product manufacturer, packer, or distributor.
- (c) The e-commerce site shall provide the product brand name or the name of the product manufacturer, distributor, or packer, when product manufacturer, distributor or packer address information is displayed on the package label at the time the product is delivered to the purchaser.
- (d) When the e-commerce site owner or operator is the also the product manufacturer, packer or distributor, the e-commerce site shall clearly and conspicuously display its name, address and contact information on both the e-commerce site and on the transaction receipt.

Section 9. Product Photograph or Accurate Product Depiction/Representation: E-commerce Site Requirements

9.1. E-commerce Packages. Any e-commerce package offered for sale on an e-commerce site shall be represented on the site with a current photograph of the package offered for sale. As an alternative, a detailed and accurate photographic depiction or representation of the package may be displayed. This picture or graphical representation shall be sufficiently sized, detailed and clear to enable the customer to distinguish this package or product from similar packages including varying sizes, varieties and product functions.

9.2. E-commerce Random Weight Packages. – E-commerce random weight products offered for sale on an e-commerce site shall be accompanied on the site by a representative picture or photographic depiction of product (packaged or unpackaged) which is being offered for sale. This picture or photographic depiction shall be sufficiently sized, detailed, and clear to enable the customer to see the product and the pictured item shall be representative of the product being offered for sale.

9.3. E-commerce Bulk Products and Select Random Quantity Packages. – Bulk products offered for sale on an E-commerce site shall be accompanied on the site by a representative picture or photographic depiction of the unpackaged product which is being offered for sale. Products packaged in random quantity packages shall be displayed on the site with a representative depiction of a representative package, a clear and conspicuous statement explaining that packaged products are of random quantity, and instructions to customers regarding the means to specify a maximum or

minimum package quantity in ordering and purchasing the product. The picture(s) or photographic depiction(s) shall be sufficiently sized, detailed, and clear to enable the customer to see the product and the pictured item shall be representative of the product being offered for sale.

9.4. E-commerce Non-Consumer Packages. – Non-consumer products offered for sale on an e-commerce site shall be accompanied on the site by a representative picture or photographic depiction of the product which is being offered for sale. This picture or photographic depictions shall be sufficiently sized, detailed, and clear to enable the customer to see the product and the pictured item shall be representative of the product being offered for sale

9.5. Pictures on Receipts: Transaction receipts are not required to provide pictures or photographic depictions

Section 10. Prominence and Placement of Required Information on E-commerce Sites: Offering E-commerce Products for Sale

10.1. General. – All information required to appear on the e-commerce site which offers products for sale shall appear thereon in the English language and shall be prominent, definite, plain, and conspicuous as to size and style of letters and numbers and as to color of letters and numbers in contrast to color of background. Any required information that is either in hand lettering or hand script shall be entirely clear and equal to printing in legibility.

10.1.1. Location. – The required e-commerce site declarations below must be present in the top 50% the screen in which the product is offered for sale:

- (a) identity,
- (b) net quantity,
- (c) product price,
- (d) brand or manufacturer name and
- (e) package picture or photographic representation/depiction.

10.1.2. Style of Type or Lettering – The required e-commerce site declarations shall be in such a style of type or lettering as to be boldly, clearly, and conspicuously presented with respect to other type, lettering, or graphic material on the screen.

10.1.3. Color Contrast. – The required e-commerce site declarations shall be in a color that contrasts conspicuously with its background.

10.1.4. Package Picture or Photographic Representation. – The product picture or photographic depiction shall be in the actual colors of the package or product. Slight variations in color shading are acceptable.

10.2. Combined Declarations of Required Information. – One or more of the required e-commerce site declarations can be combined if the resulting statement is clear and not misleading. This shall not apply to product photograph or photographic representation. Combined declarations shall be of

a consistent size same size and font, excepting the product price which may be in a larger size and a different font.

10.2.1. Combined Declarations of Required Information – The declarations of identity, net quantity, product price and/or brand or manufacturer name can be combined into a single statement on an e-commerce site provided the information is clear and not misleading. A combined statement may appear on a single line or multiple lines as illustrated below:

Examples:

1 kg (2.2 lb) Brand X Laundry Detergent \$4.99

Brand X

Laundry Detergent

1 kg (2.2 lb)

\$4.99

10.2.2. Free Area – The area surrounding a required individual or combined declaration on an e-commerce site shall be free of printed information:

(a) above and below, by a space equal to at least the height of the lettering in the declaration; and

(b) to the left and right, by a space at least equal to twice the width of the letter “N” of the style and size of type

10.3. Alternate Languages. – An e-commerce site may provide product information in one or more languages in addition to English. When an e-commerce site does provide any required product information in an additional language, all the required information specified in this regulation must be provided in that additional language or languages.

Section 11. Prominence and Placement: Delivered E-commerce Packages, Products and Receipts

11.1. General. – All information required to appear on an e-commerce package, product, or receipt shall appear thereon in the English language and shall be prominent, definite, plain, and conspicuous as to size and style of letters and numbers and as to color of letters and numbers in contrast to color of background. Any required information that is either in hand lettering or hand script shall be entirely clear and equal to printing in legibility.

11.2. Packages Intended for Sale in Retail Locations–A package properly labeled to comply with the retail shelf requirements of the UPLR will also comply with the e-commerce package label requirement.

11.3. Orientation of Required Declarations. – The required declarations on packages, products, or receipts shall be presented in such a manner as to be generally consistent to the orientation of the label or package.

Section 12. Effective Date

This regulation shall become effective on _____.

Given under my hand and the seal of my office in the City of _____ on this _____ day of _____.

Signed _____

Note: PALS submitted the following section and language with the intent to be consistent with the above proposal. The intent of PALS is for the following addition is to accompany the adoption of the above language. And be added to the Weights and Measures Law:

Section 11. Powers and Duties of the Director

The Director shall:

- (s) have the authority to employ recognized procedures and regulations designated within NIST Handbook 130, Uniform Laws and Regulations in the Areas of Legal Metrology and Fuel Quality, “E-Commerce Regulation”.**

NIST OWM Detailed Technical Analysis:

OWM recommends that the Committee request that PALS develop a strategy to reach out to other stakeholders. OWM recommends that the following organizations and others be invited to participate in the development of this proposed regulation:

- Federal Agencies (especially FTC and FDA)
- Major E-commerce retailers (Amazon, Etsy, Walmart, Target, Home Depot).
- Smaller E-commerce retailers (E-Bay)
- Trade Associations (Consumers Brands Association, Food Industry Association, National Retail Federation, Retail Industry Leaders Association (RILA))
- Consumer Groups (Consumer Reports, National Consumers League)

OWM would be able to publish a Federal Register Notice (FRN) requesting comments about the proposed rule for the NCWM. OWM will assist PALS in these outreach efforts above upon request.

- OWM recommends that PALS consider developing a presentation which illustrates how to apply the requirements to a mockup of different ecommerce websites. Which should include graphical illustrations in showing how the requirements are applied. This would assist readers to understand this proposal as it moves forward for adoption. Later these graphics could be used as a training webinar to assist weights and measures administrators and inspectors as to how to implement an enforcement program. The presentation could also be modified for use as an educational webinar for designers and developers of ecommerce websites.
- OWM supports the PALS proposal to develop a “best practices” guide for web designers and developers.

- OWM recommends PALS consider revising the title of the Regulation so that it better reflects the content which includes labeling (IRQ for website, product itself, and information accompanying the product), pricing, unit pricing, and graphic illustrations.)
- OWM also recommends PALS develop an Examination Procedure Outline (EPO) similar to the EPO for Price Verification. This would provide administrators and inspectors with detailed guidance on application of the regulation. This would allow for illustrations and examples of acceptable presentations and formats of required information. It may be worthwhile for States to start performing mock inspections of specific types of websites during the development of the regulation. This would allow for both the regulation and EPO to be developed simultaneously, and lessons learned in the mock inspections can be used to refine the regulation and answers any questions that arise. The primary reason for this proposal is to provide the states with a regulation that can be uniformly enforced across all websites. It is essential to provide uniformity so that you do not have a website owner told by one state to present information in a specific fashion, only to have a different state (or even the same state) reject the website.
- OWM recommends that PALS develop a proposed amendment to Section 11 “Powers and Duties of the Director” in the Uniform Weights and Measures Law to authorize the Director to adopt regulations that encompass the various aspects necessary to ensure ecommerce websites and other regulated sales outlets comply with legal metrology requirements. Broaden the definition of current section 2.12. E-commerce Consumer Commodity to include all commodities sold online. The definition should say “any commodity offered or exposed for sale by weight, measure or count from bulk or in packaged form” is subject to this regulation.
 - Language to modify the Weights and Measure Law, Section 11. Powers and Duties of the Director” was submitted by PALS to the Committee. NCWM Executive Director Onwiler informed the Chair McGuire that PALS could not provide new language at the Interim but would be required to submit a Form 15.
- Consider making the suggested amendments to Section 5 “Unit Pricing Requirements for Products Offered for Sale on an E-commerce Site” outlined in the OWM analysis supporting documentation. (This was addressed by PALS in the current 2022 Agenda).
- Consider adding an effective date to the regulation to provide sufficient time for online retailers to prepare for regulation.
- PALS Chair Guay submitted a revised proposal on April 12, 2022, which can be is located under the NCWM L&R supporting documents. OWM and PALS has not had sufficient time to review the changes that were submitted.
- OWM has submitted additional suggestions, edits, formatting changes, and clarifications on May 24, 2022 to PALS for this item including development of a table of contents, clarification of application and purpose of the regulation, a suggestion to provide more uniformity in like terms used, suggestions to provide relevant examples in certain sections for clarification, revisiting the requirements for bulk sales, among others.
- OWM also recommends PALS consider revising the of title of the Regulation so that it is more reflective of the content of the regulation beyond labeling (e.g., pricing, unit pricing, graphic illustrations.

Summary of Discussions and Actions:

The Committee gave an Assigned status to this item at the 2022 Interim Meeting and believes that more outreach to online retailers is needed. The Committee is uncertain that the impacted industry has had an opportunity to review and engage in the process.

The Committee also considered adding an effective date to the proposal to address this concern but determined it would be better for PALS to reach out to retailers first and then consider the need for an effective date based on the feedback received.

The Committee replaced the original proposal with new language provided by PALS on January 9, 2022. The new language also includes a new section, "Section 11. Powers and Duties of the Director."

Additional recommendations include:

- Reach out to all stakeholders including online retailers, producers, consumer groups, trade associations, and engage them in the PALS work.
- Consider comments submitted in January by NIST OWM to the PALS Chairman and L&R Committee.
- Reach out to other federal agencies with authority to regulate online retailers.
- Broaden the definition of current section 2.12. E-commerce Consumer Commodity.
- Conduct mock inspections of these e-commerce websites to help develop the item.
- Prepare a presentation which illustrates how to apply the requirements.
- Consider making the suggested amendments to Section 5 "Unit Pricing Requirements for Products Offered for Sale on an E-commerce Site" outlined in the OWM analysis supporting documentation. (this was addressed by PALS in the 2022 Item Under Consideration)
- Develop an EPO, develop a best practice guide for web design, develop a presentation on how to apply the requirements for E-commerce websites and add a section for unit pricing requirements.
- Consider adding an effective date to provide sufficient time for online retailers to prepare for regulation.

Regional Association Reporting:

Western Weights and Measures Association

At the 2021 WWMA Annual Meeting, PALS Chair Guay gave a presentation on this item. Recommended this Item as Developing. Mr. Kurt Floren (Los Angeles County, California) pointed out several editorial changes, and suggested that this becomes a Voting Item. Mr. Kevin Schnepf (CDFA-DMS) also suggested editorial changes. Ms. Lisa Warfield (NIST OWM) recommended that PALS reach out to other stakeholders. She also suggested that a broader definition of section 2.12:

“any commodity offered or exposed for sale by weight, measure or count from bulk or in packaged form.”.

Ms. Warfield also suggested mock inspections of these e-commerce websites to help develop the item and recommends that PALS consider developing a presentation which illustrates how to apply the requirements to a mockup of different ecommerce websites.

The Committee recommends that this Item be Assigned to the PALS Subcommittee. The Committee recommends that PALS develop a proposed amendment to Section 12 “Powers and Duties of the Director” in the Uniform Weights and Measures Law to authorize the Director to adopt regulations that encompass the various aspects necessary to ensure ecommerce websites and other regulated sales outlets comply with legal metrology requirements. The Committee also recommends that PALS consider making the suggested amendments to Section 5 “Unit Pricing Requirements for Products Offered for Sale on an E-commerce Site” outlined in the OWM analysis supporting documentation. The Committee recommends that PALS provides stakeholder outreach to Federal agencies, major e-commerce retailers, smaller e-commerce retailers, trade associations and consumer groups. The Committee also recommends that PALS consider Ms. Warfield’s comments to develop material for e-commerce websites and conduct practical applications of the regulation, to develop a presentation which illustrates how to apply the requirements to different e-commerce websites.

Central Weights and Measures Association

At the 2021 CWMA Interim Meeting, PALS Chair Guay commented that this is a new effort that was originally intended as a guidance document but has evolved into a stand-alone model regulation. He reviewed the main components of the proposed language. PALS recommends this item move to Informational status for further input. Ms. Lisa Warfield, NIST Technical Advisor commented that OWM recommends that PALS develop a strategy to reach out to stakeholders and invite them to participate in the development of this item. She asks the Committee to consider the NIST analysis for this item which was submitted to NCWM and CWMA L&R Committee members. The Committee recommends this item be given informational status for stakeholder input.

At the 2022 CWMA Annual, Chairman Guay, commented that the item is fully developed, and he believes the item needs to be reclassified as Informational because the item has Assigned status and no one from industry has been able to comment on it during open hearings. Ms. Warfield commented that there is additional information regarding this item in NCWM Publication 16. Mr. Charlie Stutesman (Kansas) commented that he believes the item should be escalated as a voting item so it can be discussed and vetted throughout the fall regional meetings. Chair Guay commented that he believes the item should be made Informational rather than voting because there has not been the opportunity for companies to come forward and speak to the model regulation.

The Committee recommends this item be classified as an Informational item to all more input from industry, particularly during open hearings.

Southern Weights and Measures Association

At the 2021 SWMA Annual Meeting, PALS Chair Guay gave a presentation of the work done by the group. Dr. Matthew Curran (Florida) commented on the need for these regulations for accountability and enforcement. NIST OWM provided written analysis that suggested this item be developing. They recommended reaching out to other stakeholders, amend the powers and duties of State Directors, develop

an EPO, develop a best practice guide for web design, develop a presentation on how to apply the requirements for e-commerce websites and add a section for unit pricing requirements.

The Committee recommends this item be Assigned to PALS for further development using the guidance from NIST OWM written analysis.

Northeastern Weights and Measures Association

At the 2021 NEWMA Interim Meeting, PALS Chair Guay commented that this item was originally developed as a guidance document rather than model language for regulation. As the work has progressed on this item and the demand in the marketplace continues to grow, it has become apparent there needs to be model regulation for e-commerce. Mr. Guay commented that PALS has fully developed the Item and welcomes comments from the regions. Mr. Mike Sikula (New York) recommends this item move forward as an Informational item to allow industry members time to vet and to attend future meetings and comment on the model language. Mr. David Sefcik (NIST OWM) reviewed the NIST analysis comments and stated that a copy has been provided to PALS for review. Mrs. Cheryl Ayer (New Hampshire) expressed her appreciation to PALS and supports the item moving forward. Mr. John McGuire (New Jersey) expressed his appreciation to Mr. Guay for his long and hard work on this item. He concurs the item should move forward with Informational status. The Committee recommends this item move forward with Informational status.

At the 2022 NEWMA Annual Meeting, Mr. McGuire (Acting L&R NEWMA Chair and New Jersey) noted that NCWM website has new information posted on this item under the NCWM L&R supporting documents. He has yet to review the material to determine what changes, if any, were made. Mr. Sefcik stated that NIST OWM supports the work being done by PALS. NIST OWM is working on edits and clarification for this item. NIST OWM will be assisting PALS in reaching out to stakeholders once they are determined by PALS. NIST OWM plans to include an announcement pertaining to e-commerce FRN 2022 NCWM Annual Meeting announcement. Mr. Jason Flint (New Jersey) stated that Section 5.2., Unit Pricing should be mandatory not voluntary. NEWMA L&R Committee recommends this item continue to be Assigned to PALS. NEWMA L&R requests that PALS revisit or re-review and discuss whether Unit Pricing should be mandatory or voluntary.

OTH-07.1 D Fuels and Lubricants Subcommittee

Source: NCWM Fuels and Lubricants Subcommittee (FALS)

Purpose and Justification:

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

Dr. Bill Striejewski
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Provide an update of the activities of this Subcommittee which works on direction from and reports to the L&R Committee. The mission of FALS is to assist the L&R Committee in the development of agenda items that affect Handbook 130, Uniform Fuels and Automotive Lubricants Inspection Law and Uniform Fuels and Automotive Lubricants Regulation. The Subcommittee consists of regulators and associate members who have subject matter expertise in fuels and lubricants. The Subcommittee will be called upon

to aid in the development, provide guidance, and help establish NCWM position on items concerning fuels and lubricants.

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.

The Fuels and Lubricants Subcommittee (FALS) met on Sunday, January 9, 2022, in a hybrid fashion, with attendees both in-person and via zoom at the 2022 NCWM Interim Meeting in Tampa, Florida, to review items related to fuel and automotive fluid standards that appear on the L&R agenda. FALS discussed the Item Block 6 that has been assigned to the FALS, with a report and comments from members of the Focus Group working on the block. There was also discussion of one item block that had been submitted by FALS following the Annual Meeting in July, and of two items of interest to the Subcommittee. Finally, two issues were raised as New Business. Those issues and the existing Focus Group will be discussed below.

Item Block 6 Transmission Fluid Focus Group (B6: MOS-21.1. Section 2.36.2. Labeling and Identification of Transmission Fluid and B6: FLR-21.2. Section 3.14.1. Labeling and Identification of Transmission Fluid): FG Chair Johnson (Automotive Oil Change Association) provided an update on the work of the FG since its formation in January 2021, stating that at the current time the group is deadlocked and unable to reach common ground. Several other FG members echoed those sentiments. It was suggested that it might be helpful and move the group's work forward to bring one or more additional people into the FG, especially those from OEMs. However, a person who might serve this role well is not an NCWM member. For this reason, FALS hoped that L&R would agree that bringing in expertise from outside NCWM would be beneficial. Following Open meetings, L&R was indeed agreeable to this request. The FG was originally formed because while the model regulation in NIST Handbook 130 is sufficient, there is no licensing system for transmission fluid as there is with engine oils. The FG is working to harmonize the various standards across the industry.

NIST Recommendation for Citing Federal Regulations: During the New Business portion of the FALS agenda, Ms. Warfield (NIST Technical Advisor for L&R) brought up a recommendation from the NIST OWM L&R Analysis, a supporting document for the Fall, 2021 regional meetings and was included on the NCWM Publication 15 web page under "Additional Letters, Presentations, and Data" for the L&R Committee. Ms. Warfield suggested formalizing citations from federal language to include the full title with the CFR number to increase clarity for the reader. There was some discussion during the FALS meeting, but as many were not familiar with the document or the recommendation, this will be discussed further later.

Request for Assistance Crafting a Form 15: Mr. Allan Morrison (California) mentioned that ASTM has completed an updated specification on CNG and LPG (ASTM D8080 Standard Specification for Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) (Used as a Motor Vehicle Fuel) and was hoping for assistance in getting these updates into NIST HB 130. There was some discussion and offers to assist Mr. Morrison prepare one or more Form 15's for the next cycle.

The Committee heard comments from Mr. Corr on Items MOS-22.1 and FLR-22.1 and recommends FALS review and address these concerns within NIST HB130. These comments have been provided to the Chair of FALS for consideration.

Additionally, the Committee recommends that FALS review all EPA and FTC title citations throughout NIST HB 130.

Regional Association Reporting:

At the 2021 WWMA Annual Meeting, the Committee heard a report from the FALS Subcommittee Chair Striejewski. The Committee supports the work of FALS.

At the 2021 SWMA Meeting, the Committee heard comments from Mr. Randy Jennings (on behalf of Chair Striejewski). The Committee supports the work of FALS.

At the 2021 CWMA and NEWMA Interim Meetings, Mr. Randy Jennings (FALS Vice-Chair) commented that there are many items on the FALS agenda, and that the Subcommittee had adopted a Standard Operating Procedure that will guide its work moving forward.

OTH-11.1 D Packaging and Labeling Subcommittee

Source: NCWM Packaging and Labeling Subcommittee (PALS)

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.

Summary of Discussions and Actions:

At the 2020 NCWM Interim Meeting, PALS Chair Guay reported that PALS is continuing to draft a proposed regulation and accompanying “Best Practice” document regarding products sold via e-commerce. The focus of this document is to help provide more clarity on the information necessary for consumers to make informed product choices on-line and for consumers to confirm receipt of the products ordered. PALS currently believes certain information is better included in a regulation while other information is better provided as guidance or Best Practice document. PALS will work on development of this proposed regulation and proposed guidance in the spring of 2020 with a target to have a draft proposal prepared by the 2020 NCWM Annual meeting. Separately, PALS believes the text of “Recommended Best Practice” for quantity expressions is complete. PALS is developing an illustrative appendix with graphics support being provided by the NCWM office. PALS is planning to have the “Recommended Best Practice” Document for quantity related expressions appearing on a principal display panel and the proper declaration of net quantity completed by the summer of 2021. The document has been completed and the work continues as an illustrative appendix.

PALS reviewed the framework for a proposed NIST Handbook 130 regulation regarding products sold through e-commerce. This regulation would focus on ensuring buyers have sufficient information to make an accurate product selection and value comparison at the time of purchase, while also ensuring the buyer

can confirm the product purchased is the product they receive. PALS plans to make this proposal its priority for 2021.

At the 2021 NCWM Annual Meeting, PALS reviewed a developing draft regulation pertaining to websites which offer products for sale through e-commerce, and to products which are sold and delivered because of an e-commerce purchase. PALS received comments from those in attendance at the PALS work session and they believe the next step should be to forward this proposal to regions for broader stakeholder review and comment. PALS plans to submit a proposal for this item to obtain comments at the 2021 Fall Regional Association Meetings.

At the 2021 WWMA Annual Meeting, the Committee heard a report from the Pals Subcommittee Chair Guay. The Committee supports the work of PALS.

Central Weights and Measures

At the 2021 CWMA Interim Meeting, Mr. Chris Guay (Chair of PALS) invited participation from CWMA members interest in packaging and labeling.

Southern Weights and Measures

At the 2021 SWMA Annual Meeting, Mr. Chris Guay (PALS) stated that they continue to work on PALS and will present their findings to the FDA for food safety as it relates to e-commerce. He also requested more involvement from stakeholders in their meetings to receive input as PALS moves forward on e-commerce regulation. The Committee recognizes and supports the work of PALS.

Northeastern Weights and Measures

At the 2021 NEWMA Interim Meeting, Mr. Chris Guay (PALS Subcommittee Chair) commented that he will be speaking on behalf of the Committee at an upcoming FDA hearing on e-commerce.

At the 2022 NEWMA Annual Meeting, no comments were made during open hearing.

ITEM BLOCK 1 (B1) HB 130, UPLR, SEC. 2.8. MULTIUNIT PACKAGE. HB 133 MODIFY “SCOPE” FOR CHAPTERS 2 – 4, ADD A NOTE FOLLOWING SECTIONS 2.3.7.1. AND 2.7.3., CREATE A CHAPTER 5. SPECIALIZED TEST PROCEDURES AND HB133 APPENDIX F. GLOSSARY

B1: PAL-19.1 V Section 2.8. Multiunit Package

B1: NET-19.1 V Section 1.2.4. Maximum Allowable Variation

B1: NET-19.2 V Modify “Scope” for Chapters 2 – 4, and a note following Section 2.3.7.1. Maximum Allowable Variation (MAV) Requirement and 2.7.3. Evaluation of Results – Compliance Determinations

B1: NET-19.3 V Create a Chapter 5, Specialized Test Procedures

B1: NET-19.4 V Appendix F. Glossary

(B1:NET-19.3, “Handbook 133, Create a Chapter 5. Specialized Test Procedures” must be adopted in order for the remainder of Item Block 1 to proceed.)

Source: NIST Office of Weights and Measures

Purpose and Justification:

B1: PAL-19.1 V Section 2.8. Multiunit Package - Eliminate conflicts between the UPLR and Federal Trade Commission (FTC) regulation for multiunit packages cited in 16 CFR 500.27.

B1: NET-19.1 V Section 1.2.4. Maximum Allowable Variation – Amend language regarding the total quantity declaration on multiunit or variety packages, when the MAV may need to be recalculated based on the Total Quantity MAV.

B1: NET-19.2 V Sections 2.1. Scope, 3.1. Scope, 4.1. Scope, 2.3.7.1. Maximum Allowable Variation (MAV) Requirement, and Section 2.7.3. “Evaluation of Results – Compliance Determinations” – With the adoption of Handbook 133, Chapter 5. Specialized Test Procedures this item clarifies the language within Handbook 133.

B1: NET-19.3 V Create a Chapter 5. Specialized Test Procedures – Create new chapter in Handbook 133 that has specialized test procedures to verify the inner contents of multiunit and variety packages.

B1: NET-19.4 V Appendix F. Glossary – This will add definitions for multiunit, variety and total quantity MAV into Handbook 133, Appendix F.

This item was originally submitted and developed by:

Ms. Lisa Warfield
NIST, Office of Weights and Measures
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When current test procedures in Handbook 133 are used and an MAV is applied to the total quantity declaration on some multiunit and variety packages the MAV allowed for the individual inner packages can indirectly be reduced as much as 50 % or more, depending on the number of individual items in the package. This proposal modifies Handbook 133 to add language regarding the total quantity declaration on multiunit or variety packages, when the MAV may need to be recalculated based on the Total Quantity MAV.

When a total quantity declaration on a multiunit or variety package is verified, it will require the inspector, except when the MAV is based on a percentage of the labeled quantity, to calculate and use a “Total Quantity MAV.” This calculation will determine if minus package errors are unreasonable (an unreasonable error is a minus package error that exceeds an MAV specified in the proper table of MAVs in Handbook 133, Appendix A. “Tables”) A “Total Quantity MAV” is calculated by multiplying the number of individual inner packages by the MAV value, which is based on the declared quantity of the individual inner packages. It is found by looking up the MAV for the individual inner package quantity (See HB 133, Appendix A. “Tables”) and then calculating the “Total Quantity MAV.” This test procedure will be used to assist inspectors with their inspection.

OWM Executive Summary for Item Block 1 (B1)–HB 130, UPLR, Sec. 2.8. Multiunit Package. HB 133 Modify “Scope” for Chapters 2 – 4, Add a Note following Sections 2.3.7.1. AND 2.7.3., Create a Chapter 5. Specialized Test Procedures and HB133 Appendix F. Glossary

OWM Recommendation: OWM believes these items are fully developed and recommends this as a Voting Item. We do encourage that states perform inspections using this Specialized Test Procedures and share any of their concerns with NCWM and OWM.

Table 3. Summary of Recommendations

Item Block 1 (B1)–HB 130, UPLR, Sec. 2.8. Multiunit Package. HB 133 Modify “Scope” for Chapters 2 – 4, Add a Note following Sections 2.3.7.1. AND 2.7.3., Create a Chapter 5. Specialized Test Procedures and HB133 Appendix F. Glossary

	V	D	W	A	I	Note*	Comments
Submitter	✓						
OWM	✓						
WWMA			✓				
NEWMA	✓						
SWMA			✓				
CWMA			✓				
NCWM	✓						
*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:

B1: PAL-19.1 V Section 2.8. Multiunit Package

2.8. Multiunit Package. - A package containing two or more individual packages of the same commodity, in the same quantity, intended to be sold as a multiunit package, ~~but where the component packages are labeled individually in full compliance with all requirements of this regulation.~~

B1: NET-19.1 V Section 1.2.4. Maximum Allowable Variation

1.2.4. Maximum Allowable Variation

The limit of the “reasonable minus variation” for an under filled package is called a “Maximum Allowable Variation” (MAV). An MAV is a deviation from the labeled weight, measure, or count of

an individual package beyond which the deficiency is considered an unreasonable minus error. Each sampling plan limits the number of negative package errors permitted to be greater than the MAV.

Packages may be offered for sale individually or offered for sale in multiunit packages or variety packages which contain two or more individual inner packages.

When packages are tested whether individual, multiunit, or variety packages, the MAV is applied to each package in the sample which has a minus package error.

When a total quantity declaration on a multiunit or variety package is being verified, and the MAV is not determined in terms of a percent of the labeled quantity, a “Total Quantity MAV” is compared to each minus Total Quantity Package Error(s) to determine if it is unreasonable.

$$\textit{Total Quantity Package Error} = \textit{Sum of Individual Inner Package Errors}$$

(Amended 2010 and 20XX)

Before determining the MAV and proceeding with tests of the quantity of contents in any multiunit or variety package, calculate the sum of the labeled quantity statements of all individual inner packages and verify that the labeled Total Quantity Statement reflects the accurate sum. If an error exists between the sum of the labeled quantity statements of individual inner packages and the Total Quantity Statement, the package is not in compliance and shall be deemed in violation of labeling requirements of NIST Handbook 130, Uniform Packaging and Labeling Regulation, requiring an accurate summing and statement of total quantity. Do not test for net quantity determination.

1.2.4.1. Total Quantity MAV for Multiunit and Variety Packages (See Chapter 5. “Specialized Test Procedures”)

- a. Multiunit Package. – In verifying a total quantity declaration that appears on a multiunit package compare a Total Quantity MAV to each minus Total Quantity Package Error to determine if the error is unreasonable. Calculate the Total Quantity MAV using the following formula:**

$$\textit{Total Quantity MAV} = \textit{Number of Individual Inner Packages} \times \textit{MAV for Individual Inner Package Quantity}$$

Terms are defined as:

Number of Individual Inner Packages. – The total number of individual inner packages having a uniform labeled weight, measure and/or count.

MAV for Individual Inner Package Quantity. – The MAV for the labeled quantity for the individual inner packages specified in the proper table of MAVs in Appendix A. “Tables.”

- b. Variety Package. – In verifying a total quantity declaration that appears on a variety package, compare a Total Quantity MAV to each minus Total Quantity Package Error to determine if the error is unreasonable. Calculate the Total Quantity MAV using the following formula:**

Total Quantity MAV = The sum of the applicable MAVs for all Individual Inner Packages

Variety packages include commodities that may be generically similar, but differ in weight, measure, volume, or design variation (e.g., color, flavor, scent, etc.) For these packages a Total Quantity MAV is calculated for each product type within the variety package and the results are added to obtain a Total Quantity MAV for comparison to each minus Total Quantity Package Error.

Terms are defined as:

Number of Individual Inner Packages. – The total number of similar but not identical individual inner packages with differing and/or uniform labeled weight or measure.

MAV for Individual Inner Package Quantity. – The MAV for the quantity declared for the individual inner packages specified in the appropriate MAV table in Appendix A. “Tables.”

(Added 20XX)

B1: NET-19.2 V Sections 2.1. Scope, 3.1. Scope, 4.1. Scope, 2.3.7.1. Maximum Allowable Variation (MAV) Requirement, and Section 2.7.3. “Evaluation of Results – Compliance Determinations”

Add a Note to Handbook 133, Chapter 2, Section 2.1. “Scope;” Section 3.1. “Scope;” and Section 4.1 “Scope” that refers users to the Chapter 5. “Specialized Test Procedures” for these types of packages.

Note: If Multiunit or Variety Packages are to be inspected, refer to Chapter 5. “Specialized Test Procedures” for guidance in testing.

If a total quantity declaration is being verified and the MAV to be applied is not based on a percentage of the labeled quantity, refer to Section 1.2.4.1. “Total Quantity MAV for Multiunit and Variety Packages.”

(Added 20XX)

Add the following note to NIST HB 133, Chapter 2, Section 2.3.7.1 “Maximum Allowable Variation (MAV) Requirement” and Section 2.7.3. “Evaluation of Results – Compliance Determinations.”

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.

(Added 20XX)

B1: NET-19.3 V Create a Chapter 5. Specialized Test Procedures

5.1. Scope

The following procedures are used in either verifying the net quantity of contents of retail multiunit packages with individual inner packages of the same commodity that have identically labeled

quantities or in verifying retail variety packages with individual inner packages that may differ in labeled weight, measure or volume.

1. The procedure used is determined by using the labeled net contents.

- **Use Section 5.2. “Individual Package Quantity” if a total net quantity of contents is not declared on the label of a multiunit or variety package of food for human consumption or meat or meat products from a USDA official establishment (see explanation in Section 5.2. for specific exemptions to requirement for a total net quantity statement.)**
- **Use Section 5.3. “Total Quantity” if a total net quantity of contents is declared on the package.**

Note: If the packages are labeled with additional quantity statements (i.e., dry volume, area, length, width, or thickness), added steps or, when proper, additional Total Quantity MAVs may be required in testing the accuracy of additional quantity statements.

5.2. Individual Package Quantity

This procedure is used only for verifying the total quantity statement of open or transparent-wrapped multiunit packages of foods for human consumption or meat or meat products under the authority of FDA or USDA, respectively. Under USDA-FSIS regulations (9 CFR 317.2 [h][12]) and FDA regulations (21 CFR 101.7 Chapter I [s]), such open multiunit packages that do not obscure the number of individual inner packages or the labeling of each individual inner package (compliant with all other location, type size, and applicable requirements) are not required to bear a total net quantity statement on the outside of the package (see Figure 1. Open or Transparent Multiunit Package with Fully Visible Individual Quantity Declarations).

Cereal	Cereal	Cereal	Cereal	Cereal
Net Wt. 100 g (3.5 oz)	Net Wt. 100 g (3.5 oz)	Net Wt. 100 g (3.5 oz)	Net Wt. 100 g (3.5. oz)	Net Wt. 100 g (3.5 oz)

Figure 1. Open or Transparent Multiunit Package with Fully Visible Individual Quantity Declarations

5.2.1. Test Procedure for Multiunit Packages Exempt from Total Quantity Statement (see Section 5.2.)

- 1. Follow Section 2.3.1. “Define the Inspection Lot.” The inspection lot is defined as the total number of individual inner packages in the multiunit packages (e.g., 120 packages × 12 individual inner packages = Inspection Lot size is 1440). Select “Category A” or “Category B” sampling plan in the inspection (depending on location of test) and select a random sample (See Section 2.3.4. “Random Sample Selection”).**

2. Determine an average tare weight according to Section 2.3.5. “Procedures for Determining Tare and Average Tare Weight.” Follow Section 2.3.6. “Determine Nominal Gross Weight and Package Errors” to determine package errors.
3. Determine the net quantity of each individual inner package in the sample.
 - If a count declaration is declared on the multiunit packages, verify using Section 4.2. “Packages Labeled by Count” and apply the appropriate MAV using Appendix A. Table 2- 7. MAV for Packages Labeled by Count applied.
4. If minus package errors are found in the sample, the value of the MAV to be applied is determined by matching the labeled net quantity for the individual inner packages to the applicable quantity range in the appropriate MAV table using Appendix A “Tables”.

Compare the MAV for the labeled quantity to each minus package error in the individual inner packages to determine if any are unreasonable using Section 2.3.7.1. “MAV Requirement”. If the number of unreasonable errors exceeds the amount allowed for the sample size (see Appendix A. Tables 2-1. “Sampling Plans for Category A” or Table 2-2. “Sampling Plans for Category B.” Column 4), the sample fails. If the sample passes, go to Step 5.
5. Apply Section 2.3.7.2. “Average Requirement.” Follow the procedures in Section 2.3.7. “Evaluation for Compliance.”

5.3. Total Quantity

Use this procedure to test multiunit packages labeled with a total count and/or total net quantity declaration. This procedure can be used to verify the total net quantity declared on open or closed multiunit packages or multiunit packages with transparent or opaque packaging. If the quantities of the individual inner packages vary (which is allowed in Variety Packages) or, if the quantity of the individual inner packages is not declared, see Section 5.4. “Exceptions”.

Before determining the MAV and proceeding with tests of the quantity of contents in any multiunit package, calculate the sum of the labeled quantity statements of all individual inner packages and verify that the labeled Total Quantity Statement reflects the accurate sum. If an error exists between the sum of the labeled quantity statements of individual inner packages and the Total Quantity Statement, the package is not in compliance and shall be deemed in violation of labeling requirements of NIST Handbook 130 Uniform Packaging and Labeling Regulation, requiring an accurate summing and statement of total quantity. Do not test for net quantity determination.

5.3.1. Test Procedure for Multiunit Packages

1. Follow Section 2.3.1. “Define the Inspection Lot” to define the inspection lot (number of multiunit packages). Use the inspection lot size and select a “Category A” or “Category B” sampling plan (see Appendix A. “Tables”) in the inspection plan and select a random sample. (see Section 2.3.2. “Select Sampling Plans” and Section 2.3.4. “Random Sample Selection”).
2. For packages labeled by weight, determine the tare weight and nominal gross weight. Follow Section 2.3.5. “Procedures for Determining Tare” through Section 2.3.6.

“Determine Nominal Gross Weight and Package Error” to determine package errors in the quantity of the individual inner packages as compared to the total package quantity declaration.

3. Determine the net quantity of each multiunit package and calculate the Total Quantity Package Error for each multiunit package.

The Total Quantity Package Error is the sum of the errors found in the individual inner packages.

$$\textit{Total Quantity Package Error} = \textit{Sum of Individual Inner Package Errors}$$

If applicable, verify the count declaration of the individual inner packages. To determine the MAV for count, use Appendix A, Table 2-7. “MAV for Packages Labeled by Count.”

4. If minus Total Quantity package errors are found in the sample, use the MAV for the individual inner package labeled quantity. (see Section 1.2.4.1. “Total Quantity MAV for Multiunit and Variety Packages” and the appropriate MAVs in Appendix A “Tables”). Calculate the Total Quantity MAV to be applied to the total quantity of contents declaration as follows:

$$\textit{Total Quantity MAV} = \textit{Number of Individual Inner Packages} \times \textit{MAV for Individual Inner Package Quantity}$$

Note: A Total Quantity MAV is not required when the MAV to be applied is based on a percent of a labeled quantity of a multiunit or variety package.

5. The Total Quantity MAV is compared to each minus Total Quantity Package Error to determine if any errors are unreasonable (See Section 2.3.7.1. “MAV Requirement”).
 - If the number of unreasonable errors exceeds the number allowed for the sample size the lot fails. (See Section 2.3.1. “Define the Inspection Lot” and Tables 2-1 or 2-2, Column 4).

5.4. Exceptions for Multiunit Packages

5.4.1. Multiunit Packages with Only a Total Quantity Declaration

NIST Handbook 130, Uniform Packaging and Labeling Regulation (UPLR), Section 10.4. “Multiunit Packages” states that unlabeled individual packages not intended for individual retail sale are only required to declare a total quantity declaration (see Figure 2. Multiunit Package [three packages] with only a Total Quantity Declaration). While not required, UPLR, Section 10.4. “Multiunit Packages” does allow for multiunit packages to include an optional statement for the count of the individual inner packages despite their not being fully labeled or intended for individual retail sale.

<u>Floor Cleaner</u>	<u>Floor Cleaner</u>	<u>Floor Cleaner</u>
	<u>NET WEIGHT</u> <u>15 kg (33 lb)</u>	

Figure 2. Multiunit Package (three packages) with only a Total Quantity Declaration

5.4.1.1. MAV Application

When multiunit package label does not include a quantity statement for each individual inner package (e.g., only a total quantity appears) a Total Quantity MAV cannot be applied because the quantities in the individual inner packages are unknown. In this case, the MAV value for the total quantity declaration as listed in the MAV tables (See Appendix A. Tables) is compared to the Total Quantity Package Error to determine if any package errors are unreasonable (see Section 2.3.7.1. “MAV Requirement”).

5.4.2. Variety Packages: Non-Uniform Quantity Declarations

UPLR, Section 10.6. “Variety Packages” states that a variety package is required to have total quantity declaration. The commodities may be generically similar; however, they can differ in weight, measure, volume, or style variation (e.g., color, flavor, scent, etc.). When the labeled weight, measure, or count varies, the value of the applicable MAV can also vary.

When variety packages are tested, the procedure used to calculate a Total Quantity MAV requires the summing of the MAV values over the number of inner packages of all types. An example is shown in Figure 3. Variety Package – Four Similar but Different Products with Varying Net Weights) to illustrate a total quantity declaration, count, and the weight of the individual inner packages.)

<u>30 Candy Bar – Variety Pack</u> <u>Total Net Weight 1.33 kg (2.9 lb)</u>	
<u>10 – 55 g (1.9 oz)</u> <u>Peanut Butter Cups</u>	<u>6 – 30 g (1.1 oz)</u> <u>Dark Chocolate Bars</u>
<u>6 – 46 g (1.6 oz)</u> <u>Milk Chocolate Bars with</u> <u>Almonds</u>	<u>8 – 41 g (1.5 oz)</u> <u>Milk Chocolate Bars</u>

Figure 3. Variety Package – Four Similar but Different Products with Varying Net Weights

5.5. Test Procedure for Variety Packages Containing Individual Packages with Varying Net Weights

Before determining the MAV and proceeding with tests of the quantity of contents in any variety package, calculate the sum of the labeled quantity statements of all individual inner packages and verify that the labeled Total Quantity Statement reflects the accurate sum. If an error exists between the sum of the labeled quantity statements of all individual inner packages and the Total Quantity Statement, the package is not in compliance and shall be deemed in violation of labeling requirements of NIST Handbook 130 Uniform Packaging and Labeling Regulation, requiring an accurate summing and statement of total quantity. Do not test for net quantity determination.

1. When a variety package with individual inner packages with varying net weights is tested, the average tare weight (e.g., packaging from the individual inner packages and the outer package combined) is determined and a nominal gross weight is used to determine the error in the total quantity declaration.

Total Quantity Package Error = Sum of Individual Inner Package Errors

Note: Example is based on Weight (see Figure 3. Variety Package – Four Similar but Different Products with Varying Net Weights)

Nominal gross weight = average tare weight + labeled weight
Package error = gross weight – nominal gross weight

MAVs used in calculating the Total Quantity Package MAV are based on the respective labeled quantities of each product type and are calculated for each product type within the variety package. The calculated MAVs for each of the product types are summed to obtain the Total Quantity MAV (See example shown in Table 1. Steps in Calculating a MAV for a Variety Package).

5.6. MAV Application

A Total Quantity MAV must be applied because the labeled quantities and MAVs of the individual inner packages vary. For example, based on the quantity of the total net weight (as shown in Figure 3. Variety Package- Four Similar but Different Products with Varying Net Weights) the MAV for 1.33 kg (2.9 lb) is 42.6 g (0.094 lb) but the “Total Quantity MAV” to be applied is 122.4 g (4.261 oz) (0.27 lb)(See example shown in Table 1. Steps in Calculating a MAV for a Variety Package).

<u>Table 1. Steps in Calculating a MAV for a Variety Package</u> <u>(Based on Figure 3. Variety Package – Four Similar but Different Products with Varying Net Weights)</u>				
<u>Product</u>	<u>Number of Inner Packages</u>	<u>Labeled Net Weight (each individual inner package)</u>	<u>MAV for each Individual Inner Package Based on the Labeled Net Quantity (see MAV Table 2-5)</u>	<u>Total MAV</u>
<u>Peanut Butter Cups</u>	<u>10</u>	<u>55 g (1.94 oz)</u>	<u>5.4 g (0.1875 oz)</u>	<u>10 × 5.4 = 54 g</u> <u>(10 × 0.1875 oz = 1.875 oz)</u>

<u>Table 1. Steps in Calculating a MAV for a Variety Package</u> <u>(Based on Figure 3. Variety Package – Four Similar but Different Products with Varying Net Weights)</u>				
<u>Dark Chocolate Bars</u>	<u>6</u>	<u>30 g (1.06 oz)</u>	<u>10 % of labeled quantity</u>	<u>$6 \times (0.1 \times 30) = 18 \text{ g}$</u> <u>$6 \times (0.1 \times 1.06 \text{ oz}) = 0.636 \text{ oz}$</u>
<u>Milk Chocolate Bars</u>	<u>8</u>	<u>41 g (1.45 oz)</u>	<u>3.6 g (0.125 oz)</u>	<u>$8 \times 3.6 = 28.8 \text{ g}$</u> <u>$(8 \times 0.12 \text{ oz} = 1 \text{ oz})$</u>
<u>Milk Chocolate Bars with Almonds</u>	<u>6</u>	<u>46 g (1.62 oz)</u>	<u>3.6 g (0.125 oz)</u>	<u>$6 \times 3.6 = 21.6 \text{ g}$</u> <u>$(6 \times 0.125 \text{ oz} = 0.75 \text{ oz})$</u>
			<u>Total Quantity MAV</u>	<u>122.4 g</u> <u>(4.261 oz) (0.27 lb)</u>

(Added 20XX)

B1: NET-19.4 V Appendix F. Glossary

Amend Handbook 133, Appendix F as follows:

Multunit Package. – **A package containing two or more individual packages of the identical commodity, in the same quantity, intended to be sold as a multunit package**

Variety Package. – **A package intended for retail sale, containing two or more individual packages or units of similar, but not identical, commodities. Commodities that are generically alike, but that differ in weight, measure, volume, or style variation (e.g., color, flavor, scent, etc.) are considered similar, but not identical.**

Total Quantity MAV. – **A calculated value used to determine if any minus Total Quantity Package Error found in a multunit or variety packages is unreasonable. A Total Quantity MAV is based on the declared quantity and count of the individual inner packages. It is determined by obtaining the applicable MAV for each individual inner package quantity from the appropriate Mav table (refer to Appendix A. “Tables” and then calculating the “Total Quantity MAV” as follows:**

- **Multunit Package: $\text{Total Quantity MAV} = \text{Number of Individual Inner Packages} \times \text{MAV for Individual Inner Package Quantity}$**
- **Variety Package: $\text{Total Quantity MAV} = \text{The sum of the applicable MAVs for all Individual Inner Packages.}$**

Note: A Total Quantity MAV is not used when the MAV applied is based on a percentage of the labeled quantity on a multiunit or variety package

Note: Total Quantity Package Error = Sum of Individual Inner Package Errors.

NIST OWM Detailed Technical Analysis:

This Block of Items have been on the L&R Agenda since 2019. OWM has gradually modified these items based upon comments received at Regional and NCWM meetings. There have been very limited comments with the exception of editorial changes. A concern at several of the Regional Association Meetings requested that OWM simplify the steps within the test procedure. At this time, we do not believe members have had ample time to apply the test procedure in the inspection work. In OWM's 2021 Analysis, OWM stated it would like an opportunity to simplify the steps in the test procedure to provide better clarity to the inspectors. This would also allow us time to use this in our OWM training courses with inspectors that use NIST HB133 on a consistent basis. After we have received additional testing data and feedback, we will resubmit through NCWM for consideration. At this time OWM is requesting that Block 1 be withdrawn in its entirety. OWM will also have this as a resource guidance document that the states will be able to obtain from our office.

Summary of Discussions and Actions:

At the 2019 NCWM Interim Meeting comments were heard recognizing the merit of this item. Several regulators and an industry member made comments that some areas within the test procedure are too confusing. Mr. Tim Chesser (Arkansas) remarked that he does not understand Item Net 3. Section 5.4.1.1. MAV Application. Mr. Kurt Floren (Los Angeles County, California) submitted editorial changes. The Committee accepted these revisions for the entire Item Block 1. In addition, the Committee would like NIST/OWM to address Mr. Floren's comments for Item NET-3. Chapter 5. Specialized Test Procedures will be reviewed by the NIST OWM. Due to the Federal Government furlough, NIST OWM was not in attendance, so concerns could not be addressed at the meeting. The Committee would like the submitter to review formatting, clarifying label quantity, and modifying language for additional clarity. The Committee would like to see the above issues reviewed by the submitter and encourages further development.

At the 2019 NCWM Annual Meeting, Ms. Warfield stressed to membership that this item is fully developed and a technical document and supporting data was submitted that supports these proposals. The document also provides for examples that inspectors found pertaining to multiunit and variety packages during inspections. NIST addressed the WWMA comments in the latest Item Under Consideration. There were no additional comments heard at the Annual Meeting.

At the 2020 NCWM Interim Meeting, Ms. Warfield provided an update on the last language submitted for this item on December 27, 2019. Ms. Warfield remarked the work done to develop the proposal and clarify the procedure language. Ms. Warfield reminded the audience NET-19.3 creates a Chapter 5, "Specialized Test Procedures" must be approved for the rest of the items in the block to proceed. This block of items was submitted by OWM after some states requested assistance inspecting these types of packages. Mr. Chris Guay (Procter and Gamble Co.) gave merit to the item but requested review of the definition of "multiunit package" and referred to the definition in CFR 21. Mr. Kurt Floren (Los Angeles County, California) expressed his support for the item but pointed out some punctuation and editorial changes were needed. Mr. Floren said wording in Section 5.4.3 can be improved for clarity. Ms. Ann Boeckman (Kraft Heinz Foods Co.) also expressed concerns about the definition of multiunit package for retail sale. Opinions from Ms. Angela Godwin (Ventura County, California) and Ms. Katherine DeContreras (California) were

heard during the open hearing; both agreed the procedure is confusing and needs additional work but, both concur the item has merit.

There were concerns that membership may not have reviewed the modifications submitted by NIST OWM in December 2019. There was some confusion as to whether members comments were still valid since they did not review the latest language. All comments received gave merit to the blocked Item but, some still expressed concern about the definitions of multiunit packages for retail sale and others found the language of the procedure to be confusing. Based on the comments, the L&R Committee would like the submitter to review possible issues with the definition of Multiunit packages and, to work on the procedure language to improve clarity. The L&R Committee recommends the Item Block 1 be Informational to allow the submitter to do an additional review.

At the 2021 NCWM Interim Meeting, Mr. Floren expressed concerns that the language in certain areas of B1: NET-19.1 and B1: NET-19.3 could use some clarity. Mr. Floren also recommends that the Committee consider adding in additional information directing the user to the federal regulations for USDA/FSIS and FDA for packaged foods for human consumption.

Ms. Warfield remarked there is a supporting document that provides the varying definitions for multiunit from FTC, FDA, and USDA regulations. The Committee does have a copy to assist them in deciding to how to proceed with this block. Ms. Warfield expressed concern that at NCWM and regional meetings there is not specific feedback as to what is required to get this item voting status. NIST OWM has provided all supporting data and technical papers to explain how this information was developed. Ms. Warfield suggested that if the Committee is unable to elevate this to voting status, they should withdraw it and NIST would incorporate this procedure in the NIST HB 133 training courses.

Mr. Floren and Ms. Warfield agreed to work together in preparing Mr. Floren's recommendations for acceptance into the report.

The following recommendations that reflected with either a double underscore or double strikethrough:

B1: NET-19.1. changes:

1.2.4. Maximum Allowable Variation

The limit of the "reasonable minus variation" for an underfilled package is called a "Maximum Allowable Variation" (MAV). An MAV is a deviation from the labeled weight, measure, or count of an individual package beyond which the deficiency is considered an unreasonable minus error. Each sampling plan limits the number of negative package errors permitted to be greater than the MAV.

Packages may be offered for sale individually or offered for sale in multiunit packages or variety packages, which contain two or more individual inner packages.

When ~~individual~~ packages are tested whether individual, multiunit, or variety packages, the MAV is applied to each package in the sample which has a minus package error.

Add a paragraph to make it clear to the inspector how to handle a package that is not in compliance and due to a Packaging and Labeling Regulation violation

Before determining the MAV and proceeding with tests of the quantity of contents in any multiunit or variety package, calculate the sum of the labeled quantity statements of all individual inner

packages and verify that the labeled Total Quantity Statement reflects the accurate sum. If an error exists between the sum of the labeled quantity statements of individual inner packages and the Total Quantity Statement, the package is not in compliance and shall be deemed in violation of labeling requirements of NIST Handbook 130, Uniform Packaging and Labeling Regulation, requiring an accurate summing and statement of total quantity. Do not test for net quantity determination.

1.2.4.1. Total Quantity MAV for Multiunit and Variety Packages (See Chapter 5. “Specialized Test Procedures”)

- a. Multiunit Package. – In verifying a total quantity declaration that appears on a multiunit package, compare a Total Quantity MAV to each minus Total Quantity Package Error to determine if the error is unreasonable. Calculate the Total Quantity MAV using the following formula:
- b. Variety Package. – In verifying a total quantity declaration that appears on a variety package, compare a Total Quantity MAV to each minus Total Quantity Package Error to determine if the error is unreasonable. Calculate the Total Quantity MAV using the following formula:

$$\text{Total Quantity MAV} = \text{The sum of the applicable MAVs for all Individual Inner Packages}$$

Variety packages include commodities that may be generically similar, but differ in weight, measure, volume, or ~~appearance~~ design variation (e.g., color, flavor, scent, etc.). For these packages, a Total Quantity MAV is calculated for each product type within the variety package and the results are added to obtain a Total Quantity MAV for comparison to each minus Total Quantity Package Error.

Changes to B1: NET-19.3 are reflected below:

5.1. Scope

The following procedures are used in either verifying the net quantity of contents of retail multiunit packages with individual inner packages of the same commodity that have identically-labeled quantities or in verifying retail variety packages with individual inner packages that differ in labeled weight, measure or volume.

1. The procedure used is determined by using the labeled net contents.
 - Use Section 5.2. “Individual Package Quantity” if a total net quantity of contents is not declared on the label of a multiunit or variety package of food for human consumption or meat or meat products from a USDA official establishment (See explanation in Section 5.2. of specific exemptions to requirement for a total net quantity statement).
 - Use Section 5.3. “Total Quantity” if a total net quantity of contents is declared on the package.

Note: If the packages are labeled with additional quantity statements (i.e., dry volume, area, length, width, or thickness), added steps or, when proper, additional Total Quantity MAVs may be required in testing the accuracy of such additional quantity statements.

Changes to Section 5.2. will add additional language to clarify how to inspect packaged foods for human consumption. The CFR links are hyperlinked to provide inspectors direct access to the CFR information if they are using an online handbook.

5.2. Individual Package Quantity

This procedure is used only for verifying the total content statement of open or transparent-wrapped multiunit packages of foods for human consumption or meat or meat products under the authority of FDA or USDA, respectively. Under USDA FSIS regulations (9 CFR 317.2 [h][12]) and FDA regulations (21 CFR 101.7 Chapter I [s]), such open multiunit packages that do not obscure the number of individual inner packages or the labeling of each individual inner package (compliant with all other location, type size, and applicable requirements) are not required to bear a total net quantity statement on the outside of the package (see Figure 1. Open or Transparent Multiunit Package with Fully Visible Individual Quantity Declarations).

The capture for Figure one should be clarified to read, Figure 1. Open or Transparent Multiunit Package (containing two rows of packages) with Fully Visible Individual Quantity Declarations

5.2.1. Test Procedure for Multiunit Packages Exempt from Total Quantity Statement (See Section 5.2)

Step 4 in this section should be clarified to read: **If minus package errors are found in the sample, the value of the MAV to be applied is determined by matching the labeled net quantity for the individual inner packages to the applicable value in the appropriate MAV table (see Appendix A “Tables”).**

Add a statement to Section 5.3. Total Quantity to make it clear to the inspector how to handle a package that is not in compliance and due to a Packaging and Labeling Regulation violation

Before determining the MAV and proceeding with tests of the quantity of contents in any multiunit package, calculate the sum of the labeled quantity statements of all individual inner packages and verify that the labeled Total Quantity Statement reflects the accurate sum. If an error exists between the sum of the labeled quantity statements of individual inner packages and the Total Quantity Statement, the package is not in compliance and shall be deemed in violation of labeling requirements of NIST Handbook 130 Uniform Packaging and Labeling Regulation, requiring an accurate summing and statement of total quantity. Do not test for net quantity determination.

5.4. Exceptions for Multiunit Packages

5.4.1. Multiunit Packages with Only a Total Quantity Declaration

NIST Handbook 130, Uniform Packaging and Labeling Regulation (UPLR), Section 10.4. “Multiunit Packages” states that when containing unlabeled individual packages and not intended for individual retail sale, the multiunit package only requires a total quantity declaration (see Figure 2. Multiunit Package [three packages] with only a Total Quantity Declaration). While not required, UPLR, Section 10.4. “Multiunit Packages” does allow for multiunit packages to include an optional statement for the count of the individual inner packages despite their not being fully labeled or intended for individual retail sale even when the UPLR, Section 10.4. “Multiunit Packages” regulations do not require such a statement.

5.5. Test Procedure for Variety Packages Containing Individual Packages with Varying Net Weights

When a variety package with individual inner packages of varying net weights is tested, the average tare weight (e.g., packaging from the individual inner packages and the outer package combined) is determined and a nominal gross weight is used to determine the error in the total quantity declaration.

Changes for B1: NET-19. 4 appear below

Multiunit Package. – A package containing two or more individual packages of the identical commodity, in the same quantity, intended to be sold as a multiunit package

Variety Package. – A package intended for retail sale, containing two or more individual packages or units of similar, but not identical, commodities. Commodities that are generically alike, but that differ in weight, measure, volume, appearance or style variation (e.g., color, flavor, scent, etc.) or quality, are considered similar, but not identical.

Total Quantity MAV. – A calculated value used to determine if any minus Total Quantity Package Error found in a multiunit or variety package is unreasonable. A Total Quantity MAV is based on the declared quantity and count of the individual inner packages. It is determined by obtaining the applicable MAV for each individual inner package quantity from the appropriate MAV table (refer to Appendix A. “Tables”) and then, calculating the “Total Quantity MAV” as follows:

- **Multiunit Package:**
 $Total\ Quantity\ MAV = Number\ of\ Individual\ Inner\ Packages \times MAV\ for\ Individual\ Inner\ Package\ Quantity$
- **Variety Package:**
 $Total\ Quantity\ MAV = The\ sum\ of\ the\ applicable\ MAVs\ for\ all\ Individual\ Inner\ Packages$

Several regulators spoke in support of having this item further developed based upon Mr. Floren’s comments. They persuaded the Committee from removing any of the Items from the Block that were deemed fully developed and ready for Voting status. This will allow the item to move forward together since the language impacts the various sections.

Mr. Guay (retired) does like the intent of the proposal but struggles with removing language from the definition of a multiunit package because the definition is well understood by industry. Mr. Ed Coleman (Tennessee) remarked that this test procedure appears to be a very involved process and questioned if this could only be done in a point of pack. Mr. Coleman remarked their state would normally do an audit test at retail locations and he is unsure how practical this procedure is.

During the Committee work session, there was limited time for the Committee to revise the language. The Committee approved the recommendations addressed by Mr. Floren and NIST and will be incorporated into the Item under Consideration. The Committee is also recommending the language remain in Informational status to obtain feedback from the Regional Associations.

At the 2021 NCWM Annual Meeting, Mr. Floren provided a few minor editorial changes within the entire block; with those changes he does support. Mr. Floren did request that the Committee review B1: NET-19.3 Section 5.5.1., the equation is not accurate. At the Committee work session Ms. Warfield provided a

correction to the language in Section 5.5.1. The current Item under Consideration was modified to include editorial changes and clarity to the equation under Section 5.5.1.

At the 2022 NCWM Interim Meeting, the Committee assigned Voting status to these items at the 2022 Interim meeting because it heard support for moving them forward, heard no opposition and believes they are fully developed.

Regional Association Reporting:

Western Weights and Measures Association

At the 2021 WWMA Annual Meeting, Ms. Warfield provided testimony that language needs to be clarified to make it useful and simple for inspectors. NIST OWM intends to use the information in this item for training programs to continue improving the procedure to provide clarity for all levels of inspectors. Ms. Warfield is hoping to provide resource documents and guidance that would allow for enforcement procedures. Mr. Floren provided testimony that indicated he believes the language is factually correct and would further clarify the procedures for conducting such inspections. Mr. Floren believed he had some ideas on condensing this item and feels it would serve as great training material.

The Committee recommends that the NCWM National L&R Committee consider withdrawing this Item to allow NIST OWM to further refine this procedure, and vet the language for future inspector use.

Central Weights and Measures Association

At the 2021 CWMA Interim Meeting, Ms. Warfield commented that when this issue was originally submitted it was only a test procedure, but in developing that item realized that additional sections of handbook need to be addressed. She is suggesting that the item be withdrawn, and instead they would use a revised version as a resource document. The Committee recommends this item be withdrawn.

Southern Weights and Measures Association

At the 2021 SWMA Annual Meeting, there were no comments received from the floor during open hearings. Ms. Warfield requested from their written analysis that the National L&R withdraw this item to allow NIST OWM time to simplify the steps in the test procedure to provide better clarity to the inspectors. NIST does not think believe that states have had ample time to test apply the test procedure. NIST will work on this as they develop training courses and will keep this as a resource document, until it gets resubmitted. The Committee recommends Withdrawing this item.

Northeastern Weights and Measures Association

At the 2021 NEWMA Interim Meeting, Mr. David Sefcik (NIST OWM) recommended the entire block be withdrawn. A concern at several regional association meetings was that the steps within the test procedure need to be simplified. Mr. Sefcik indicated that the procedure is sound and factual, but that this would give OWM time to use the procedure in training courses which will provide valuable feedback and additional testing data to help simplify and provide clarification. It will also be made available as a resource document. The intent is to submit the item in the future. He suggested this block be withdrawn. Mr. Walt Remmert (Pennsylvania) supports withdraw of the item at this time to be resubmitted later for further vetting and simplification. Mr. John McGuire supports the recommendation of the submitter as Withdraw status. Mr. Jim Willis (New York) also supports Withdraw status. Ms. Warfield commented that this is an Informational item that the L&R Committee has ownership of it, therefore NCWM Chair McGuire needs

to agree to downgrading the status to Withdraw. Mr. Jim Cassidy (Massachusetts) agrees the item should be withdrawn. The Committee concurs that this block be withdrawn.

At the 2022 NEWMA Annual Meeting, Mr. McGuire (Acting L&R Chair) noted he believes the Block 1 of items is fully vetted and ready to be voted on.

No additional comments during the open hearing.

ITEM BLOCK 2 (B2) COMMERCIAL AND LAW ENFORCEMENT EQUIPMENT

B2: WAM-22.1 V Section 1.11. Commercial and Law Enforcement Equipment

B2: NTP-22.1 V Section 2.15. Commercial and Law Enforcement Equipment

Source: NIST Office of Weights and Measures

Purpose and Justification:

Add clarification regarding the implications of using weighing and measuring devices for transactions that may or may not be considered commercial transactions. OWM has noted several inquiries submitted to our office for explanation on the many and various issues involved with the use of weighing or measuring devices as commercial devices when there is charge for doing so.

The submitter added that there seems to be a difference in opinions regarding this practice constitutes a commercial transaction.

The submitter requested that this be a Voting Item in 2022.

OWM Executive Summary for Item Block 2. Commercial and Law Enforcement Equipment							
OWM Recommendation: OWM commends the L&R and S&T Committees for working in a collaborative effort to address memberships concerns. OWM believes this Item is fully developed and recommends this as a Voting Item.							

Table 3. Summary of Recommendations							
Item Block 2. Commercial and Law Enforcement Equipment							
	V	D	W	A	I	Note*	Comments
Submitter	✓						
OWM	✓						
WWMA		✓					
NEWMA	✓						
SWMA		✓					
CWMA	✓						
NCWM	✓						

Table 3. Summary of Recommendations							
Item Block 2. Commercial and Law Enforcement Equipment							
	V	D	W	A	I	Note*	Comments
*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: WAM-22.1 V Section 1.11. Commercial and Law-Enforcement Equipment.

Amend Handbook 130, Uniform Weights and Measures Law as follows:

1.11. Commercial ~~Weighing and Measuring~~ Law-Enforcement Equipment. – The terms “commercial weighing and measuring equipment” **and “law-enforcement equipment”** ~~refer to~~ **are** defined as follows:

- (a) “Commercial Weighing and Measuring Equipment” means Weights** and measures and weighing and measuring devices ~~commercially~~ used or employed in:
- (1)** establishing the size, quantity, extent, area, **composition (limited to meat and poultry)**, constituent values (limited to grain), or measurement of quantities, things, produce, or articles for distribution or consumption, purchased, offered, or submitted for sale, hire, or award;
 - (2) assessing a fee for the use of the equipment to determine a weight or measure;**
 - (3) determining the basis of an award using count, weight, or measure; or**
 - (4)** computing any basic charge or payment for services rendered on the basis of weight or measure.
(Amended 2008 **and 20XX**)
- (b) ~~To~~ “Commercial Weighing and Measuring Equipment” includes** any accessory attached to or used in connection with a commercial weighing or measuring device when such accessory is so designed that its operation affects the accuracy of the device.
- (c) “Law-Enforcement Equipment” means ~~To weighing and measuring equipment in official use for the enforcement of law or for the collection of statistical information by government agencies.~~**

(These requirements should be used as a guide by the weights and measures official when, upon request, courtesy examinations of noncommercial equipment are made.)

(Added 1995) (Amended **20XX**)

B2: NTP-22.1 V Section 2.15. Commercial and Law Enforcement Equipment.

Amend Handbook 130, Uniform Regulation for National Type Evaluation as follows:

2.15. Commercial and Law-Enforcement Equipment. – The terms “commercial weighing and measuring equipment” and law-enforcement equipment refer to:

(1) Commercial weighing and measuring equipment; that is:

(a) To weights and measures and weighing and measuring ~~devices~~ **equipment** commercially used or employed in:

- 1.** establishing the size, quantity, extent, area, **composition (limited to meat and poultry), constituent values (limited to grain),** or measurement of quantities, things, produce, or articles for distribution or consumption, purchased, offered, or submitted for sale, hire, or award;
- 2.** **assessing a fee for the use of the equipment to determine a weight or measure;**
- 3.** **determining the basis of an award using count, weight, or measure; or**
- 4.** computing any basic charge or payment for services rendered based on weight or measure.

(Amended 2008 **and 20XX**)

(b) To any accessory attached to or used in connection with a commercial weighing or measuring device when such accessory is so designed that its operation affects the accuracy of the device.

(2) Law enforcement equipment; that is:

(a) To weighing and measuring equipment in official use for the enforcement of law or ~~for~~ the collection of statistical information by government agencies. ^[see Section 2.15. Note]

(Amended 20XX)

(These requirements should be used as a guide by the weights and measures official when, upon request, courtesy examinations of noncommercial equipment are made.)

(Added 20XX)

*Section 2.15. NOTE: ~~The~~ **This** section is identical to G-A.1. Commercial and Law Enforcement Equipment, Section 1.10. General Code, NIST Handbook 44 for definition of “commercial” and “law enforcement equipment.”*

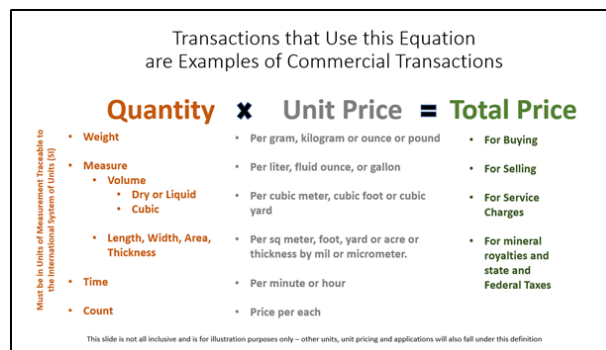
NIST OWM Detailed Technical Analysis:

OWM receives inquiries from states requesting assistance in interpreting this definition. This proposal was an outcome of the inquiries, and OWM believes this proposal will make it easier for the reader to distinguish between commercial and non-commercial transactions and provides the necessary clarifications and amendments.

Within the Uniform Weights and Measures Law, the term “equipment” is used in Section 1.11 that definition and “devices” is used in this regulation. OWM is recommending harmonizing this definition across all the regulations and handbooks. In addition, consideration should be given to determining if changing the title of the regulation to “equipment” from “devices” is justified but, if that word is changed, the regulation’s title will also need to be revised in Section 8 of the Uniform Weights and Measures Law.

Upon OWM reviewing the L&R and S&T’s agenda we recognize that minor change is needed to harmonize the language across NIST Handbook 130 and 44 to provide for consistent terminology. Within Item B2: WAM-22.1. there is a duplication of language that OWM will need to address. OWM also recognizes that within the Uniform Regulation for the Voluntary Registration of Servicepersons and Service Agencies for Commercial Weighing and Measuring Devices, Section 2.3. a definition exists for Commercial and Law Enforcement Weighing and Measuring Devices. We apologize for not having these changes done prior to the start of the WWMA.

This graphic illustrates how the definition may be applied in several different examples of commercial transactions:



Summary of Discussions and Actions:

At the 2022 NCWM Interim Meeting, the Committee assigned Voting due to the support heard support for this block. The L&R and S&T Committee will convene to harmonize the all related items to the extent possible due to inherent differences in the scope of NIST Handbooks 44 and 130.

Regional Association Reporting:

Western Weights and Measures Association

At the 2021 WWMA Annual Meeting, Ms. Warfield, provided testimony as to the purpose of the proposal, which is to harmonize NIST Handbook 130 and NIST Handbook 44 regulations pertaining to determining commercial and noncommercial use of devices. The Committee received comments from Mr. Kurt Floren (County of Los Angeles, California) indicating that the block is factually correct and that it would provide guidance for inspectors. He suggested continuous work is needed. He also recommended that the L&R and S&T Committee work together to mirror language.

The Committee recommends this as a Developing item. The Committee sees merit in this item but wants to ensure language is harmonized with any changes made to GEN 22.1 NIST Handbook 44 General Code G.A.1.

Central Weights and Measures Association

At the 2021 CWMA Interim Meeting, Mr. Loren Minnich (Kansas) commented he has submitted a suggested language change in Part A.2 (see below). Ms. Lisa Warfield (NIST OWM) commented that there was an accidental duplication in part of the item as well as an issue in Section 2.3 that needs to be addressed. She recognizes there is additional work to be done to this item. Mr. Charlie Stutesman (Kansas) commented that he is unclear if this item is necessary and believes the language in the Handbook is appropriate as it currently reads. Ms. Warfield clarified that this item is intended to merely clarify the language across handbooks. Mr. Ivan Hankins (Iowa) commented that he does not believe this item is necessary. Mr. Doug Musick (Kansas) commented that there is ambiguity with the term “other”. He believes the language is unclear. Mr. Minnich further commented that he is undecided as to whether this item will provide further clarification or not but is not opposed to the attempt. Mr. Konrad Crockford (North Dakota) commented he understands the effort to clarify this section of the handbook but is not sure about the flow of the proposed content. He also made the point that it is the inspector who needs to understand how to implement the language and attempting to clarify an item does not always accomplish that. The Committee recommends this item be given Developing status.

a. To other commercial weighing and measuring equipment:

i. when there is a fee assessed for the use of the equipment to determine a weight or measure;

i. ~~used to determine the bases of an award using count, weight, or measure~~ when using weight, measure, or count as the basis to determine an award; or

iii. used in computing any basic charge or payment for services rendered based on weight or measure.

At the 2022 CWMA Annual Meeting, there were no comments heard. The Committee is recommending this as a Voting item.

Southern Weights and Measures Association

At the 2021 SWMA Annual Meeting, Ms. Lisa Warfield (NIST OWM) (submitter) had provided the Committee a written analysis as to the purpose of the proposal and requested this item be given a Developing status. No comments were received from the floor. The Committee recommends this as a Developing item. The Committee sees merit in this item and wants to ensure language is harmonized across all affected sections of the Handbooks.

Northeastern Weights and Measures Association

At the 2021 NEWMA Interim Meeting, Mr. David Sefcik (NIST OWM) commented that NIST has provided an analysis on all items on the agenda and asks the members to review their analysis. He further commented that this item clarifies and harmonizes these items between NIST Handbook 130 and Handbook 44. Mrs. Tina Butcher (NIST OWM) commented that there are still some inconsistencies in language proposed for this item and the related item in the S&T Committee. She believes the items need to be reconciled by the NCWM Interim Meeting in January 2022. Mr. Jim Willis (New York) asked if this item would include scales that are used to judge a fishing derby, wrestling scales, etc.? Mrs. Butcher commented that it would include these two examples. She commented that “award” has been in the handbooks for a long time. Chairman Sakin commented that the scope and use of the NIST Handbook 44 is referenced in Section GA.1. Mr. John McGuire (New Jersey) asked for clarification as to this block being incorporated

for harmonization of WAM 22.1, NTP-22.1, S&T GEN 22.1 Handbook 44 G.A-1 to provide mirror language and incorporate NIST Handbook 130 Uniform Regulation for the Voluntary Registration of Serviceperson and Service Agencies for Commercial Weighing and Measuring Devices. Mrs. Butcher stated that was correct and NIST OWM does expect to have fully developed language that will address all references to NIST Handbook 130 and Handbook 44 – General Code. There were no objections to assigning a Developing status for now with the intent to upgrade to Voting status. Mr. McGuire and Mr. Walt Remmert (Pennsylvania) both supports a Developing status. The Committee recommends this item be given Developing status.

At the 2022 NEWMA Annual Meeting, Mr. McGuire noted that this block is intended to harmonize these items across handbooks for uniformity. Mrs. Tina Butcher (NIST OWM) stated this item overlaps with the S&T agenda. This item addresses ambiguities in fees for services. OWM believes this item is ready for a vote and would align corresponding language regarding the definition for the word ‘commercial’ in NIST Handbooks 130 and 44. No additional comments received during the open hearing. NEWMA L&R Committee recommends this continues to be a Voting item.

ITEM BLOCK 3 (B3) CANNABIS

(**Note:** At the 2022 NCWM Interim Meeting, the Committee heard testimony on each individual item in Block 3: B3 (Cannabis). The comments heard are reported for each item within the block, but the Committee will keep items PAL-22.1 PAL 22.2 and MOS-22.2 together as a block. Item NET-22.1 is removed from the block and will be considered separately.)

- B3: PAL-22.1 V Section 2. Definitions 2.XX. *Cannabis* and *Cannabis*-Containing Products.
- B3: PAL-22.2 V Section 10. Requirements, 10.XX. *Cannabis* and *Cannabis*-Containing Products.
- B3: MOS-22.2 V Section 1.XX. *Cannabis* and *Cannabis*-Containing Products and 2.XX. *Cannabis* and *Cannabis*-Containing Products.
- B3: NET-22.1 A HB133, Section 1.2.6. Deviations Caused by Moisture Loss or Gain and Section 2.3.8. Table 2-3 Moisture Allowances.

Source: NCWM Cannabis Task Group

Purpose and Justification:

B3: PAL-22.1 V Section 2. Definitions 2.XX *Cannabis* and *Cannabis*-Containing Products.

Establish a clear definition of Cannabis and Cannabis-containing products for use in Handbook 130 Uniform Packaging and Labeling Requirements.

Since *Cannabis* and *Cannabis*-containing products were first legalized by some states, the industry has undergone an unprecedented expansion. Even though these products haven’t received Federal approval at this time, more and more states have supported *Cannabis* and *Cannabis*-containing products for medicinal or adult-use under their own laws. This has resulted in boutique markets developing across the country with restrictive state boundaries for lack of clarity and uniformity in commercialization of these products.

Cannabis and *Cannabis*-containing products are unique in many aspects; they have a niche as medicine, have resulted in the development of adult use markets, and have an incredible array of different manufacturing and industrial applications. Some of these products contain controlled substances which presents a special concern for the safety and welfare of consumers if misused or mishandled. Further, they are subject to strict regulations by multiple government agencies. *Cannabis* and *Cannabis*-containing products and applications range from non-food to food products for human and animal consumption

through inhalation, ingestion, and/or topical or dermal application. They can be used as ingredients in other commodities, changing in most cases the product identity to *Cannabis* and *Cannabis*-containing products. Some *Cannabis* and *Cannabis*-containing products are very susceptible to environmental conditions easily losing or gaining moisture with consequences impacting net quantity, degradation of active cannabinoids, and/or microbial proliferation depending on the situation. These are just some of the reasons there are many concerns and uncertainty surrounding the method of sale and commercialization of *Cannabis* and *Cannabis*-containing products.

Many states have already, or are in the planning stages of, codified packaging and labeling regulations that may differ from those proposed here. They may change yet again once the federal government establishes regulations for *Cannabis* and *Cannabis*-containing products. However, unifying the packaging and labeling requirements nationally through this proposal will eliminate the boutique markets currently developing. Much of industry has expressed the desire for uniformity and this will align with their needs in this regard.

The submitter requested that this be a Voting Item in 2022.

B3: PAL-22.2 V Section 10. Requirements, 10.XX Cannabis and Cannabis-Containing Products.

Establish uniform packaging and labeling requirements for Cannabis and Cannabis-containing products. In addition to the justification statement in PAL 22.1 this section is specific to Cannabis is being introduced as an ingredient into many commodities, having a statement on the principal display panel will allow consumers to be informed as to its contents. The amount and type of cannabinoids are a deciding factor to consumers when purchasing Cannabis and Cannabis-containing products. This would also provide regulators with the information necessary to ensure consumers are not being defrauded as these products carry a hefty price tag. A declaration of marketed cannabinoids and their respective concentration will allow consumers to compare like products for value comparison. Both requirements will also act as a safety mechanism to alert consumers of the contents and aid them in selecting the desired product.

B3: MOS-22.2 V Section 1.XX. Cannabis and Cannabis-Containing Products and 2.XX. Cannabis and Cannabis-Containing Products.

Create a new section in the Uniform Regulation for the Method of Sale of Commodities in Handbook 130 for *Cannabis* and *Cannabis*-Containing Products. Given the nature of these products, they need to be included in both, the Food and Non-Food sections of this regulation.

This proposal was drafted by the Method of Sale Focus Group within the NCWM Cannabis Task Group.

The ASTM International D37 Cannabis Committee has more than 900 members, the vast majority of which are industry stakeholders. The first two D37 standards passed through the consensus process related to water activity, one of which used all available data to establish an ideal range of 0.55 to 0.65 for *Cannabis* plant material. The proposal to the Method of Sale herein includes a water activity of 0.60 +/- 0.05. While industry has indicated they will reiterate their support for this water activity standard through the NCWM process it is important for the Committee and Membership to be made aware that approximately 900 industry members have already weighed in on and given their consensus support to this standard. Since *Cannabis* and *Cannabis*-Containing products were first legalized by some states, the industry has undergone an unprecedented expansion. Even though these products haven't received Federal approval at this time, more and more states have supported *Cannabis* and *Cannabis*-Containing products for medicinal or recreational use under their own laws. This has resulted in boutique markets developing across the

country with restrictive state boundaries for lack of clarity and uniformity in commercialization of these products.

Cannabis and *Cannabis*-Containing products are unique in many aspects; they have a niche as medicine, have resulted in the development of adult use markets, and have an incredible array of different manufacturing and industrial applications. Some of these products contain controlled substances which presents a special concern for the safety and welfare of consumers if misused or mishandled. Further, they are subject to strict regulations by multiple government agencies. *Cannabis* and *Cannabis*-Containing products and applications range from non-food to food products for human and animal consumption through inhalation, ingestion, and/or topical or dermal application. They can be used as ingredients in other commodities, changing in most cases the product identity to *Cannabis* and *Cannabis*-Containing products. Some *Cannabis* and *Cannabis*-Containing products are very susceptible to environmental conditions easily losing or gaining moisture with consequences impacting net quantity, degradation of active cannabinoids, and/or microbial proliferation depending on the situation. These are just some of the reasons there are many concerns and uncertainty surrounding the method of sale and commercialization of *Cannabis* and *Cannabis*-Containing products.

As a new and rapidly developing industry and given the level of uncertainty and lack of uniformity, *Cannabis* and *Cannabis*-Containing products need a clear and consistent method of sale to provide equity and fairness in the marketplace. Uniformity throughout the method of sale of *Cannabis* and *Cannabis*-Containing products would harmonize regulations across states so these products are not limited by their borders. Further, this would ensure clear and fair competition in the marketplace and provide accurate quantity information for consumers to make informed price and quantity comparisons.

Cannabis has proven to be susceptible to environmental changes, a source of controlled substances, of a high dollar value, and a safety risk for consumers if misused or mishandled. As a result, *Cannabis* and *Cannabis* products require a water activity standard that shall be maintained throughout the entire distribution process from extraction to retail sale.

Water activity is a measure of “free” water available in the plant material to fuel microorganism growth. It is reported on a scale from 0 to 1. The optimal water activity range for *Cannabis* has been determined through scientific studies to be 0.55 - 0.65 and correlates to an environment that is least conducive to the growth of destructive and harmful microorganisms (e.g., molds). If *Cannabis* was to be sold with as little water content as possible the product would not remain viable (i.e., loss or destruction of desired components, such as cannabinoids and terpenes) for as long and could subject the public to increased health and safety concerns. It would not be feasible to have a moisture allowance close to zero but a product viability and safety moisture content within the optimal water activity range. A water activity between 0.55 and 0.65 in *Cannabis* typically correlates to a moisture content of 10-12 %. (See attached Colorado MED report showing 14 % of all flowers failed initial mold/yeast testing before being allowed on the market).

On the *Cannabis* cultivation side, recall that *Cannabis* flower is one of the most valuable materials in the U.S. after precious metals or gems. Between the highest safe water activity (0.65) and the lowest possible water activity (0.04), *Cannabis* flower can fluctuate about 5 % in weight. This means that a jurisdiction not having the ability to test water activity through the supply chain stays exposed to bad actors who could manipulate water activity at key points to divert about 5 % of any harvest in a way that will completely evade every track and trace system. In a world where oversight agencies are concerned about tracking every gram, leaving thousands of pounds at risk of diversion and the related tax loss to the much more lucrative black market is a hole that needs to be plugged.

In the retail *Cannabis* trade, Insufficient attention and guidance is given to moisture migration in or out of some *Cannabis* packaging and as a result, the contents of some *Cannabis* flower packaging have been found to be underweight, resulting in the patient/consumer paying for weight that they are not receiving. For instance, underweight complaints are the #1 consumer complaint in Oregon. For the fairness and safety of *Cannabis* consumers, a 3% +/- weight variance Containing on enforcement of acceptable moisture range needs to be established. As has been learned in other industries in which W&M has jurisdiction, if something can get out of a retail package during distribution, it can also get in. The ability to test packaged *Cannabis*-Containing products at retail for water activity becomes a safety and equity concern.

Solution: ASTM D8197-20 (1) establishes the ideal moisture range for *Cannabis* flower in terms of water activity of 0.60 ± 0.05 . (Exclusive free access to that ASTM D8197 and to an ASTM water activity eLearning course can be accessed by reaching out to charlie@cprsquaredinc.com). This correlates to a moisture content of 10-12 %, which narrows the range of weight variation that must be addressed in dealing with moisture loss.

More than 800 ASTM D37 members concluded that the ideal range for cannabis and hemp flower is 0.55 - 0.65 (the equivalent to 55 – 65 % Relative Humidity). This was affirmed by the U.S. Pharmacopeia's Expert Cannabis Panel in their Cannabis Paper (2) to mitigate mold growth and maintain the quality attributes.

Consumers/patients buying *Cannabis* products are looking for a desired effect. Those effects are in part determined by the presence of terpenes, which have different scents and provide various therapeutic effects. The presence of these terpenes is diminished as the plant dries and the effects the patient/consumer is expecting are also diminished from what is shown on the label (terpene testing). The U.S. Pharmacopeia has determined the same water activity of 0.60 ± 0.05 to be ideal for maintaining these quality attributes (e.g., cannabinoid and terpene content) of *Cannabis* flower (attached).

The submitter mentioned the following possible opposing arguments:

- Patients and Consumers don't want to buy water when purchasing *Cannabis*. When it comes to *Cannabis*, they want to buy the right amount of water. The right amount of water (or moisture) helps safeguard the quality and integrity of the *Cannabis* components consumers are purchasing. These active components would degrade in overdried plant material. It could also be argued that by providing a constant moisture content through establishment of a water activity standard for the proper sale of unprocessed *Cannabis* there is a measure of ensuring proper quantity during purchase.
- W&M doesn't regulate quality. To the extent establishing an acceptable water activity range is monitoring quality, this is a positive by-product of monitoring equitable transactions, promoting health and safety and preventing diversion. Oversight of motor fuels is analogous in the sense that the attributes of motor fuel are a function of quality and samples are sent to a lab for testing these attributes.
- Equipment cost. The additional cost of water activity meter(s) should not be prohibitive. It could be easily offset by the revenue that would be saved by preventing over drying and diversion and/or by fees collected. This could be accomplished by random testing of *Cannabis* flower throughout the manufacturing and distributions processes. It should also be noted that setting a water activity standard in the MOS does not establish testing requirements nor frequency of testing requirements.

- Illegal activity. Not every state has legalized the sale and distribution of *Cannabis*, whether it contains more or less than 0.3 % THC. However, there are many states (and federal agencies) that have legalized the sale of *Cannabis* in some form or fashion or another. There are strong indication that federal and other state agencies are working to establish requirements for the sale of *Cannabis* and *Cannabis*-products.
- Some have expressed concern over this water activity applying to *Cannabis*-containing products, which resulted from confusion. The water activity proposed herein would not apply to *Cannabis*-containing products, rather it would only apply to *Cannabis* plant material. Traditional water activity levels applied to food products would not be altered or affected by this proposal.

B3: NET-22.1 A HB133, Section 1.2.6. Deviations Caused by Moisture Loss or Gain and Section 2.3.8. Table 2-3 Moisture Allowances.

Establish an acceptable Net Weight allowance for Cannabis, which is related to the MOS Form 15 related to water activity and the Packaging and Labeling Form 15 Sections 2 and 10.

Since *Cannabis* and *Cannabis*-containing products were first legalized by various states, the industry has undergone an unprecedented expansion. Even though these products haven't received Federal approval at this time, more and more states have supported *Cannabis* and *Cannabis*-containing products for medicinal or adult use under their own laws. This has resulted in boutique markets developing across the country with restrictive state boundaries for lack of clarity and uniformity in commercialization of these products.

Cannabis and *Cannabis*-containing products are unique in many aspects; they have a niche as medicine, have resulted in the development of adult use markets, and have an incredible array of different manufacturing and industrial applications. Some of these products contain controlled substances which presents a special concern for the safety and welfare of consumers if misused or mishandled. Further, they are subject to strict regulations by multiple government agencies. *Cannabis* and *Cannabis*-containing products and applications range from non-food to food products for human and animal consumption through inhalation, ingestion, and/or topical or dermal application. They can be used as ingredients in other commodities, changing in most cases the product identity to *Cannabis* products. Some *Cannabis* is very susceptible to environmental conditions easily losing or gaining moisture with consequences impacting net quantity, degradation of active cannabinoids, and/or microbial proliferation depending on the situation. These are just some of the reasons there are many concerns and uncertainty surrounding the moisture allowance of *Cannabis*.

In the retail *Cannabis* trade, insufficient attention and guidance is given to moisture migration in or out of some *Cannabis* packaging and as a result, the contents of some *Cannabis* flower packaging have been found to be underweight, resulting in the patient/consumer paying for weight that they are not receiving. For instance, underweight complaints are the #1 consumer complaint in Oregon. See attached table for data from multiple stores of four brands and the incidence of underweight contents. **Preview:** If you were shopping any one of 3 stores of a popular brand, you'd have a 71 % chance of buying a supposedly 1.75 g package that is 21.6% underweight, meaning you have a 71 % chance of being ripped off by \$5 (assuming a \$10/g price). The lowest incidence of underweight? 54 %. The lowest percent underweight? 2.75 %.

For the fairness and safety of *Cannabis* consumers, a 3% $\pm$ weight variance based on enforcement of acceptable moisture range needs to be established. A 3% allowance aligns with other known commodities and with California regulations that outline $\pm$ 3%.

Why 3 %? Consistent with other items in NIST handbook, aligns with California. If the boundaries are too wide, it exposes the program to diversion.

Is underweight really an issue? I filed Public Records requests with every state that allows *Cannabis* flower commerce. Each of them told me they keep no official records on underweight complaints. However, Oregon went on record telling me underweight is one of their largest complaints (attached). As for one other state, see attached data from Colorado that recorded 69 separate container purchases from 18 separate stores within four brands.

The submitter asked that this be a Voting Item in 2022.

OWM Executive Summary for Block 3. Cannabis
OWM Recommendation: OWM recognizes the importance of this work and the progress the TG has made thus far. However, there are some significant issues that need to be addressed before this block of items is ready for adoption. OWM recommends this block be designated “Assigned” to the Cannabis TG in order for them to obtain additional information and further develop. OWM has outlined a number of areas requiring additional work in the OWM Executive Summary and OWM Detailed Technical Analysis (below) and states may have additional areas that need to be addressed. “Cannabis” Statement: In contrast to hemp, marijuana remains a Schedule I substance under the Controlled Substances Act. NIST does not have a policy role related to the production, sale, distribution, or use of cannabis (including hemp and marijuana). NIST participates in the National Conference of Weights and Measures (NCWM) as part of NIST’s statutory mission to promote uniformity in state laws, regulations, and testing procedures. • OWM continues to encourage the Cannabis TG reach out to State Cannabis Commissions, Medicinal Programs, Health Departments, and other State Cannabis Regulatory authorities to work collaboratively to develop language that is acceptable to all stakeholders. There are approximately 22 states that have labeling laws or regulations. • To inform stakeholders of any developments by the TG, OWM recommends the TG provide a summary to appear in the NCWM Publications. It should be clarified if this TG reports to the NCWM L&R Committee or NCWM Board of Directors. Form 15’s submitted by the Cannabis TG include the following statements. OWM comments are included with each point. • “W&M does not regulate quality. To the extent establishing an acceptable water activity range is monitoring quality, this is a positive by-product of monitoring equitable transactions, promoting health and safety and preventing diversion.” • OWM Comment: <i>Weights and measures strives for equity in the marketplaces but has not been involved with the health and safety side of commodities.</i>

OWM Executive Summary for Block 3. Cannabis

- “Equipment cost. The additional cost of water activity meter(s) should not be prohibitive. It could be easily offset by the revenue that would be saved by preventing over drying and diversion and/or by fees collected. This could be accomplished by random testing of Cannabis flower throughout the manufacturing and distributions processes. It should also be noted that setting a water activity standard in the MOS does not establish testing requirements nor frequency of testing requirements.”
- **OWM Comment:** *Many states’ package inspection activities are not fee-supported and would not be generating income by charging fees for services.*

B3: PAL-22.1. – Section 2. Definitions, 2.XX. Cannabis and Cannabis-Containing Products

- Section 2 Definitions define terms as they are used in the UPLR; these are not intended to define commodities in the marketplace. The Committee would not want to set a precedent to defining commodities.
- “Cannabis” has a known standard of identity; it is not necessary to add a definition to the handbook.
- Definitions should have the proper terminology used for delta-9 by including the term tetrahydrocannabinol followed by (THC) (delta-9 tetrahydrocannabinol (THC))

B3: PAL-22.2. – Section 10. Requirements, 10.XX. Cannabis and Cannabis-Containing Products

- OWM had previously noted our concerns with “*Cannabis*” being italicized. Is it a requirement that this term “Cannabis” appear an italics style for packaging and labeling requirements? If so, OWM recommends the Committee add the statement to (a)(2); “the term *Cannabis* shall appear in capitalization and italics style.” If it is not a requirement the capitalization and italics format must be removed to avoid confusion in labeling requirements.
- OWM recommends the following formatting change to provide clarity to make it easier to follow and apply.

These recommendations also correct grammar (i.e., line 14 states “less that” rather than “less than” and subsection (b) uses the term “marketed” rather than “labeled”).

10.XX. Cannabis and Cannabis-Containing Products – A Cannabis or Cannabis-containing product that is intended for human or animal consumption or application, the following information shall appear on the outside of the package:

(a) On the principal display panel

- (1) a statement “Contains Cannabis”;**
- (2) a statement with either “contains less than 0.3 % total delta-9 THC” or “contains 0.3 % or more total delta-9 THC”; and**

OWM Executive Summary for Block 3. Cannabis

(b) On the back or side panel

(1) a declaration of the labeled cannabinoid per serving or application; and

(2) the quantity declaration shall be in terms of milligrams.

B3: MOS-22.2 Section 1.XX *Cannabis* and *Cannabis-Containing Products* and 2.XX *Cannabis* and *Cannabis-Containing Products*

OWM does not concur that a method of necessary for this commodity. The Weights and Measures Law, Section 16. Method of Sale which specifies:

Section 16. Method of Sale

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

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

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

The method of sale shall provide accurate and adequate quantity information that permits the buyer to make price and quantity comparisons. (Amended 1989)

- If the Committee proceeds with language for a method of sale it is not necessary to list example of product types for each unit of measure. These examples should be stricken from the language

B3:NET-22.1. HB133, Section 1.2.6. Deviations Caused by Moisture loss or Gain and Section 2.3.9. Table 2-3 Moisture Allowances.

OWM does not concur with adding a 3 % weight variance.

- The 3% was assigned by the Cannabis TG; the TG based this value on other known commodities stated within NIST HB 133 Table 2-3 Moisture Allowance and to align with California regulations. The Moisture Loss WG has not shared any moisture allowance data with the Cannabis TG or L&R Committee.
- OWM recognizes that there was only one member of the Cannabis TG Moisture Loss WG. We encourage those other members to join this group, submit data, and reach consensus on bringing language forward to the L&R Committee. In 1988, NCWM Task Force developed the Guidelines for NCWM Resolution of Requests for the Recognition of Moisture Loss in Other Packaged Foods in NIST Handbook 130 NCWM Policy, Interpretations and Guidelines Section 2.5.6. we encourage the Cannabis Moisture Allowance WG to follow this guidance.
- The form 15 submitted by the Cannabis TG states “For the fairness and safety of Cannabis consumers, a 3 % $\pm$ weight variance based on enforcement of acceptable moisture range needs to be established. A 3 % allowance aligns with other known commodities and with California regulations that outline $\pm$ 3%. There has been no data reviewed from the California regulations to

OWM Executive Summary for Block 3. Cannabis

ensure the accuracy of this number. It is believed the 3 % was a number that California is using only to initiate inspections and obtain data before finalizing their number.

- Section 2.XX.X. Water Activity speaks about “unprocessed” Cannabis but does not define what this means and there is no reference within ASTM D8197. With the Water Activity incorporated within the Method of Sale the sentence should have the terms “kept, offered, or exposed, sold, bartered, or exchanged, or ownership transfers” stricken from the proposal.
- Water Activity is not related to Moisture Allowance. Water Activity should not be placed into the Moisture Allowance Table 2-3 within NIST HB 133. Doing so will only cause confusion.
- Water Activity is used to measure the growth of microbes using ASTM D8196-20, Standard Practice for Determination of Water activity (a_w) in Cannabis, helping to ensure its safety. It is also used to identify the potency (THC level). In many states water activity testing would be conducted by an agency, other than weights and measures. Outside of fuel quality most weights and measures programs do not inspect and enforce quality and safety of most consumer commodities.

The Committee should consider the development of a NIST HB133 – Chapter 5 test procedure for determining moisture allowance if the MOS is adopted with criteria for Water Activity.

Table 3. Summary of Recommendations

Block 3. – Cannabis							
	V	D	W	A	I	Note*	Comments
Submitter	✓						
OWM				✓			
WWMA				✓		4	
NEWMA	✓						NET 22.1 – Assigned
SWMA	1					4	
CWMA	✓					4	
NCWM	✓						
		Letters of Support	Letters of Opposition		Comments		
Regulator		1			Ms. Bell (FL Director of Cannabis) comment on the Fall 2021 OWM Analysis.		
*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:

B3: PAL-22.1 V Section 2. Definitions 2.XX *Cannabis* and *Cannabis*-Containing Products.

2.XX. *Cannabis* and *Cannabis*-Containing Products – Cannabis is a genus of flowering plants in the family Cannabaceae, of which *Cannabis sativa* is a species. This definition includes products that contain 0.3 percent or less of Total Delta-9 THC (also known as Hemp) and products that contain more than 0.3 percent of Total Delta-9 THC (also known as Cannabis, Marijuana or Marihuana).

(Added 20XX)

B3: PAL-22.2 V Section 10. Requirements, 10.XX *Cannabis* and *Cannabis*-Containing Products.

10.XX. *Cannabis* and *Cannabis*-Containing Products – Any *Cannabis* or *Cannabis*-containing products intended for human or animal consumption or application, shall bear on the outside of the package the following:

(a) On the principal display panel

(i) The statement “Contains *Cannabis*.”;

(ii) The statement “Contains less than 0.3% Total Delta-9 THC” or “Contains 0.3% Total Delta-9 THC or more.”; and

(b) On back or side panel of the package a declaration of the quantity of milligrams of each marketed cannabinoid per serving or application.

B3: MOS-22.2 V Section 1.XX. *Cannabis* and *Cannabis*-Containing Products and 2.XX. *Cannabis* and *Cannabis*-Containing Products.

1.XX. *Cannabis* and *Cannabis*-Containing Products – Cannabis is a genus of flowering plants in the family Cannabaceae, of which *Cannabis sativa* is a species. This definition includes products that contain 0.3 percent or less of Total Delta-9 THC (also known as Hemp) and products that contain more than 0.3 percent of Total Delta-9 THC (also known as Cannabis, Marijuana or Marihuana).

1.XX.X. Unit

(a) Volume – Products offered for sale in liquid form shall be sold by volume. (e.g. oils, concentrates, soft drinks).

(b) Weight- Products offered for sale in non-liquid form shall be sold by weight. (e.g. candy, baked goods, flower). These products may also have a supplemental declaration of count or measure.

1.XX.X. Sale from Bulk

(a) When sold from bulk, all sales shall be based on net weight or net quantity.

(b) When liquids are offered for sale from bulk, the reference temperature for measurement shall be 20 °C (68 °F). Products shall be delivered at a temperature within ± 2 °C (5 °F). Artificially heating liquids to temperatures higher than the specified limits is prohibited.

1.XX.X. Water Activity-When unprocessed *Cannabis*, is kept, offered, or exposed for sale, sold, bartered, or exchanged, or ownership transfers, the water activity shall be 0.60 (± 0.05) in accordance with latest version of ASTM D 8197, *Standard Specification for Maintaining Acceptable Water Activity (aw) Range (0.55 to 0.65) for Dry Cannabis Flower Intended for Human/Animal Use*.

The latest version of ASTM D 8197 defines water activity as a_w , n—the partial vapor pressure of water in a substance divided by the partial vapor pressure of pure water at the same temperature which is calculated by dividing the partial vapor pressure of water in the substance (P) by the partial vapor pressure of pure water at the same temperature (P_o), that is, $a_w = P/(P_o)$. This describes quantitatively the capability of the cannabis flower in a sealed container to affect the humidity of the container's headspace air.

And

Section 2. Non-Food Products.

2.XX. *Cannabis* and *Cannabis*-Containing Products – *Cannabis* is a genus of flowering plants in the family Cannabaceae, of which *Cannabis sativa* is a species. This definition includes products that contain 0.3 percent or less of Total Delta-9 THC (also known as Hemp) and products that contain more than 0.3 percent of Total Delta-9 THC (also known as Cannabis, Marijuana or Marihuana).

2.XX.X. Unit

(a) Volume – Products offered for sale in liquid form shall be sold by volume. (e.g. topical oils, lotions, cremes).

(b) Weight- Products offered for sale in non-liquid form shall be sold by weight. (e.g. balms, cigarettes, flower). These products may also have a supplemental declaration of count or measure.

2.XX.X. Sale from Bulk

(a) When sold from bulk, all sales shall be based on net weight or net quantity.

(b) When liquids are offered for sale from bulk, the reference temperature for measurement shall be 20 °C (68 °F). Products shall be delivered at a temperature within ± 2 °C (5 °F). Artificially heating liquids to temperatures higher than the specified limits is prohibited.

2.XX.X. Water Activity-When unprocessed *Cannabis*, is kept, offered, or exposed for sale, sold, bartered, or exchanged, or ownership transfers, the water activity shall be 0.6 (± 0.05) in accordance with latest version of ASTM D 8197, *Standard Specification for Maintaining*

Acceptable Water Activity (aw) Range (0.55 to 0.65) for Dry Cannabis Flower Intended for Human/Animal Use.

B3: NET-22.1 A HB133, Section 1.2.6. Deviations Caused by Moisture Loss or Gain and Section 2.3.8. Table 2-3 Moisture Allowances.

Amend Handbook 133, Checking the Net Contents of Packaged Goods, as follows:

1.2.6. Deviations Caused by Moisture Loss or Gain

Deviations from the net quantity of contents caused by the loss or gain of moisture from the package are permitted when they are caused by ordinary and customary exposure to conditions that normally occur in good distribution practice and that unavoidably result in change of weight or measure. According to regulations adopted by the U.S. Environmental Protection Agency, no moisture loss is recognized on pesticides. (see Code of Federal Regulations **40 CFR 156.10.**)

1.2.6.1. Applying a Moisture Allowance

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

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

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

Example:

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

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

(Amended 2010)

This handbook provides “moisture allowances” for some meat and poultry products, flour, pasta, **Cannabis (this only includes plant material but does not include products containing Cannabis)** and dry pet food. (See Chapter 2, Table 2-3. “Moisture Allowances”) These allowances

are based on the premise that when the average net weight of a sample is found to be less than the labeled weight, but not by an amount that exceeds the allowable limit, either the lot is declared to be within the moisture allowance or more information must be collected before deciding lot compliance or noncompliance.

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

(Amended 2002)

Table 2-3. Moisture Allowances		
Verifying the labeled net weight of packages of:	Moisture Allowance is:	Notes
Flour	3 %	
Dry pet food	3 %	Dry pet food means all extruded dog and cat foods and baked treats packaged in Kraft paper bags and/or cardboard boxes with a moisture content of 13 % or less at time of pack.
Pasta products	3 %	Pasta products means all macaroni, noodle, and like products packaged in kraft paper bags, paperboard cartons, and/or flexible plastic bags with a moisture content of 13 % or less at the time of pack.
Borax	see Section 2.4. Borax	
<u>Cannabis</u>	<u>3 %</u>	<u>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).</u>
Wet Tare Only¹		
Fresh poultry	3 %	Fresh poultry is defined as poultry above a temperature of – 3 °C (26 °F) that yields or gives when pushed with the thumb.
Franks or hot dogs	2.5 %	
Bacon, fresh sausage, and luncheon meats	0 %	For packages of bacon, fresh sausage, and luncheon meats, there is no moisture allowance if there is no free-flowing liquid or absorbent material in contact with the product and the package is cleaned of clinging material. Luncheon meats are any cooked sausage product, loaves,

Table 2-3. Moisture Allowances		
		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 4 th 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]).		

NIST OWM Detailed Technical Analysis:

WATER ACTIVITY (additional comments are in Item B3: MOS-22.2)

OWM’s comments are based in part on the following:

- “Water activity is different from water content (or moisture content), which is a measure of the total amount of moisture in a material and is usually expressed as a percentage of the total amount (% of total weight).”¹
- Water activity is a primary concern in food safety. While water activity has a relationship to moisture content but “moisture content does not correlate as well as water activity with microbial growth, chemical stability, or physical stability.”² However, “water activity and moisture content are related through the moisture sorption isotherm.”¹
- The only reason weights and measures officials are concerned with moisture content is in determining whether variations in the net weight of packaged goods due to the loss or gain of moisture are reasonable. Weights and Measures has not historically enforced product quality. If product quality is going to be enforced, then it is likely the additional requests will be made by industry for Weights and Measures to enforce water activity in other commodities as well.
- To define water activity and put the proposed water activity limits within context with other products (here the proposal requires the water activity of unprocessed cannabis to be 0.6 ± 0.05

¹ See pccarx.com/Blog/why-water-activity-matters-in-pharmacy-compounding-rssid (Accessed 6/17/2022). Providing this URL to this commercial website does not mean that NIST endorses any product or service advertised on that website. This information is provided to assist the Committee in its consideration of this proposal.

² See: “**The What, How, and Why of Water Activity in Cannabis (cannabissciencetech.com)**” (Accessed 6/17/2022). Providing this URL to this commercial website does not mean that NIST endorses any product or service advertised on that website. This information is provided to assist the L&R Committee in its consideration of this proposal.

whenever it is sold, or ownership transferred) OWM presents the following. The FDA defines the “water activity of a food is the ratio between the vapor pressure of the food itself, when in a completely undisturbed balance with the surrounding air media, and the vapor pressure of distilled water under identical conditions. A water activity of 0.80 means the vapor pressure is 80 percent of that of pure water.”³ FDA further explains that “most foods have a water activity above 0.95 and that will provide sufficient moisture to support the growth of bacteria, yeasts, and mold. The amount of available moisture can be reduced to a point which will inhibit the growth of the organisms.” FDA explains that if the water activity of food is controlled to 0.85 or less in the finished product, it is not subject to the FDA regulations (see **21 CFR § 108 “Emergency Permit Control,” § 113 “Thermally Processed Low-Acid Foods Packaged in Hermetically Sealed Containers,”** and **§ 114 “Acidified Foods.”**)³)

- It should also be noted that all states that have regulations regarding Cannabis require that the water activity may not exceed 0.65. On the contrary, none of these states require a minimum of 0.55 in their regulations. This implies that states are only concerned with mold growth and its potential safety affects, and not dehydration.

OWM recommends that the Committee or Cannabis TG provide a document that includes specific citations to the studies and references or to the industry standards (e.g., ASTM) and the recommendations of the U.S. Pharmacopeia as these important references will be needed for the foreseeable future to allow for the development for use in developing training and in assisting the states in adopting enforcement policies and even test equipment requirements.

It is important to note the FDA statement “water activity increases with temperature.”¹ Since there is a strong connection between these two factors OWM recommends that the proposal be amended to include suitable storage temperature and humidity limits wherever unprocessed cannabis is sold or ownership transferred. Further, consideration should be given to requiring sellers and processors to maintain and share this type of data with inspectors during inspections because it may prove invaluable to the inspector in determining if the variations in water activity and quantity due to the loss or gain of moisture are reasonable. Many other factors including the product’s natural moisture content and consistency impact moisture content and time and air flow also impact the rate of moisture loss (as do temperature and humidity) but none of those factors are typically subject to regulation by weights and measures regulations. However, OWM acknowledges that for cannabis, especially if water activity limits are adopted into regulation storage area humidity and temperature may be justified and critical in helping the cannabis industry to avoid violations. It appears these would fall within “Current Good Distribution Practices” which must be met under both Federal and State packaging laws for other package requirements when reasonable variations must be allowed.

When the current moisture allowances for many other under consideration by the NCWM there was no discussion or intent to establish water activity limits or specific moisture content limits for flour (typically 12 to 14 percent), pasta (31 to 32 percent during its plastic state when under production) or even meat and poultry products which may contain between 60 to 73 percent water. In part this is because weights and measures laws do not typically grant the director the authority to establish the moisture content limits for foods, drugs, or cosmetics. OWM recommends that Committee clearly state that weights and measures inspections to be conducted under this proposed regulation will limited to only cannabis that there is no intent to expand it to foods. This statement of intent early in the consideration process may be helpful to future readers of the historical record.

³ **Water Activity (a_w) in Foods | FDA** (accessed 6/17/2022)

“When unprocessed *Cannabis* is sold, or ownership transferred”

OWM recommends that the Cannabis TG or Committee clarify how the language shown above is to apply in the real world that inspectors work in. OWM also recommends that the Cannabis TG or Committee provide examples of how an inspector is to enforce the water activity requirement without interfering with a commercial transaction. This may not be the submitter’s intent but as written and inspector cannot perform a water activity inspection of the cannabis until it is sold, or ownership transferred. That appears to put the inspector in a position of waiting until a commercial transaction is completed before compliance with this requirement is determined. Dependent on the time between the sale and inspection it raises potential challenges for the inspector because the buyer may have exposed the cannabis to mishandling or high temperatures. The water activity violation may be the fault of the buyer not the seller.

Enforcement problems like this arose frequently in the early years of package control when some legislatures passed similar legislation where the requirement for accurate net weight only applied to packages that had been sold. Under the laws written that style many states were left without the authority to inspect and test packages that were kept, offered for exposed for sale or sold until their legislatures amended these types of laws.

To ensure that inspectors have the authority to inspect products kept, offered, or exposed for sale or sold OWM recommends that the Committee consider amending this requirement as follows:

2.XX.X. Water Activity-When unprocessed *Cannabis*, is kept, offered, or exposed for sale, sold, bartered, or exchanged, or ownership transfers, the water activity shall be 0.6 ($\pm$ 0.05). Unprocessed *Cannabis* is in compliance with this requirement unless the water activity is less than 0.55 or greater and 0.65.

This language will ensure consistency with that in the NIST Handbook 130, Uniform Weights and Measures Law under Section 11 “Powers and Duties of the Director” and will help ensure that this requirement can be effectively enforced at all levels of cannabis distribution and in any of the described transactions. OWM also recommends that the accuracy statement be clarified to clearly state the plus or minus values that must be exceeded for a violation to occur.

Conflict in Law or Regulation

The potential for conflict may be highest in states that have separate agencies with authority to regulate all aspects of cannabis sales. Directors in these jurisdictions may be concerned about the possibility of a conflict in law if cannabis definitions and other regulations are added to either of the uniform regulations. This would be especially true if the regulations were not identical to other state agency’s regulations already in effect. Another potential problem may arise if a State’s law does not allow cannabis to be sold for either recreational or medical purposes where the addition of requirements, for example a method of sale or label regulation, may be mistaken by a reader to permit cannabis to be sold because it is now included in state regulations. To avoid this situation a state director may use the state’s administrative rulemaking procedure to “reject or modify” the conflicting provisions of the uniform regulations but that process may take several months. If the survey reveals that adoption of some of the cannabis regulations may create these types of conflicts, OWM believes a simpler approach of removing the conflicting laws or regulations may be worth considering. One option is to have a note placed at with each cannabis regulation so that the enforcement of any conflicting requirement found in a uniform regulation would automatically be permanently suspended. Below is a drafted language based upon NIST Handbook 44, General Code G-N.1. Conflict of Laws and Regulations which establishes the specifications, tolerances, and other technical requirements for

weighing and measuring devices and where occasionally conflicts arise where safety or other regulations are in effect:

NOTE: Conflict of Laws and Regulations. – If any particular provision of the requirements in this section or subsection (include the section or subsection here for exactness) are found to conflict with existing federal or state laws or regulations (i.e., sale of cannabis is prohibited) or local ordinances relating to the definition, labeling, potency or other requirements for cannabis or cannabis containing products, the enforcement of such provisions shall be permanently suspended. Such suspension shall not affect the validity or enforcement of the remaining provisions of any other requirement in this regulation.

Current Authority in Weights and Measures Law

The survey may also reveal that a director has advisement from legal counsel that the State's weights and measures law does not give the state director authority to regulate the types of cannabis labeling. If the Committee determines this is the case, regardless on the number of states, amended language will be required to the Uniform Weights and Measures Law to add the needed authority. OWM has drafted a new subsection (r) to add the appropriate regulatory authority to promulgate a variety of cannabis requirements to the Uniform Weights and Measures Law as was done for the price verification procedure in 1995. The following draft has language to reflect that the Director has the authority to set variations for potency, ingredients, warning labels, water activity and moisture loss or gain permitted when current good manufacturing and distribution practices are followed. If the Committee uses this draft, it could then add additional areas of responsibilities in this emerging area of weights and measures regulation.

Be advised that OWM draft language omits references to "intrastate commerce" because when that provision is applied in conjunction with the terms and definitions in Section 12.1.2. "Variations Resulting from Exposure" in the UPLR, which reads that "so long as" the packages are in the control of the packager or person who introduces the packages into intrastate commerce that reasonable variations in net quantity caused by the loss or moisture loss or gain shall not be recognized, likely conflict the Federal Food, Drug and Cosmetic Act and regulations published by the FDA. This is a complex legal issue and would require too much space to fully explain but the issue was discussed in the NIST Handbook 133 Working Group many years ago and the consensus at the time among officials was that all packaged products should be treated the same regardless of whether they are in "intra-state" or "interstate commerce."

OWM is trying to foresee potential problems with these proposals and is offering solutions that may allow for the adoption at the 2022 NCWM Annual Meeting. OWM recommends adding another Section in (2) which would allow the director to utilize accredited laboratories to perform testing when the states weights and measures laboratory does not have the capabilities. It also grants the director authority to employ a conformity assessment program. This could be a program where companies are inspected and accredited by a competent party, such as ASTM, who maintain accreditation and are subject to random audits to ensure compliance. This would allow the director to rely on alternative approaches instead of having their state metrology laboratory to obtain equipment and testing expertise they may not possess.

OWM believes that in the future weights and measures inspections will also need to employ increased interstate cooperation among weights and measures programs as well as conformity assessment, and accreditation programs to supervise the new ways commercial measurements are utilized. We see an increase of goods being delivered to homes directly from remote shipping facilities. The testing of prepackaged goods for testing will decline and that may lead to the need for states to reach out for assistance from other jurisdictions to investigate complaints. Assistance will be required to go into distribution points

or point of pack to test packaged goods or assist in evaluating whether current good manufacturing practices are in place or to help in resolving moisture loss (or gain) issues.

Utilizing accreditation programs to ensure products compliance are currently in use around the world. An example of this is the U.S. Consumer Product Safety Commission (CPSC) having oversight of toys sold in the U.S. marketplace. The use of such systems would empower programs to focus on supervising the marketplace and using risk assessments and audits to oversee far more than is possible with today's resources. OWM often hears weights and measures plays catch-up instead of actively participating in the development of new areas of commercial weighing and measurement. One way to take a larger step in any field of weighing and measurement is to be able to provide leadership and marketplace supervision using new approaches and looking for opportunities in the emerging areas of legal metrology regulations (e.g., electric vehicle charging systems and GPS transportation systems). Recognizing these options would be a good first-step for cannabis.

OWM also recognizes that regulation of cannabis packaging is different than other packaged products in the marketplace. Current authority for weights and measures regulations typically cannot prescribe the type and color of packaging, the use of production codes, manufacture date, warning labels cannabis symbols, or other requirements. UPLR regulations cannot dictate whether the product can look like candy or baked goods or whether labels can display a picture of a cartoon character. But those aspects are part of the regulatory powers given to cannabis regulatory agencies in many states, and those local requirements vary depending on whether the state legislature allows recreational use or only medicinal use cannabis. In most jurisdictions only the legislature can grant enforcement authority to regulatory agencies and sometimes there is overlap.

There are numerous examples from the past that show conflicting requirements and inspection procedures can be avoided through cooperation. Most states that have a Department of Agriculture also have a state chemist and seed control laboratory, that have regulatory authority to prescribe net quantity of contents requirements. They work closely with the weights and measures division for guidance and assistance in ensuring that labeling regulations are consistent. The inspectors who carry out inspections have the authority as well as the training and equipment to perform the inspections and tests properly and uniformly. A similar solution is for weights and measures agencies to

Cannabis Formatted as Italicized Text

Within the proposed section title, the term *Cannabis* is italicized. When label designers see terms presented in italics in a regulation, they may interpret that to mean the same text also has to appear on the package label in italics. It may reduce the chance for confusion if the Committee makes it clear whether the term *Cannabis* must appear on the package label in italics or not.

This type of issue occurred in the 1960s when the Federal Trade Commission (FTC) published their first regulations under the FPLA. FTC submitted the regulations to the Government Printing Office (GPO) with the symbol and abbreviations for units without periods. To address the concerns of the packers on limited package spacing the drafters felt that excluding the "period" would provide packers additional space they required. The misstep was the GPO editors applied government publication formatting and applied the period on all the symbols for units as abbreviations. The rules were published, and periods were added to labels because of how they were expressed within the regulation, even though a separate section stated "periods" were optional. A lesson learned that if you put a term in a regulation in "italics" lawyers, label designers, and inspectors may interpret the regulation as it "shall" be shown on the label in that formatting style.

OWM recommends this proposal as modified and that the requested survey of states be included as part of the Committee report. OWM recommends survey questions be presented to state directors promptly. This will allow adequate time for them to consult with legal counsel and provide their responses to the NCWM prior to the 2022 Interim Meeting. With all of the information identified above and the OWM recommended modifications, we recommend it as a Voting item, if not we recommend it as either Developmental or Informational.

PALS -22.1. Section 2. Definitions 2.XX Cannabis and Cannabis-Containing Products.

OWM recommends that the definition in 2.X.X. **Cannabis and Cannabis-Containing Products** be reordered to provide clarity and readability so that the 0.3 percent or less value wording appears first and the more than 0.3 percent wording appears second. OWM recommends also that the word “percent” and not the symbol be used; that the word “definition” be substituted for section; and that “contains” be used instead of containing.

OWM proposed rewording for the definition of Cannabis found within the UPLR:

2.XX. Cannabis and Cannabis-Containing Products – Cannabis is a genus of flowering plants in the family Cannabaceae, of which Cannabis sativa is a species. This definition includes products that contain 0.3 percent or less of Total Delta-9 THC (also known as Hemp) and products that contain more than 0.3 percent of Total Delta-9 THC (also known as Cannabis, Marijuana or Marihuana).

OWM recommends that consideration be given for the OWM proposed language in B3: PAL-22.1 and recommend it as a Voting item.

B3: PAL-22.2 Section 10. Exemptions, 10.XX Cannabis and Cannabis-Containing Products

The application of this section is clearly stated that it only applies to products that contain cannabis, so no exceptions need be included. OWM recommends that 10.XX be revised as shown below.

10.XX. Cannabis and Cannabis-Containing Products- Any Cannabis or Cannabis-containing products, with the exception of commodities listed under Section 10.9 Textile Products, Threads and Yarns and other non-food products not intended for human or animal application, shall bear on the outside of the package the following:

OWM submits the following questions to the Committee about how this regulation is to be interpreted and enforced:

“Shall Bear on the Outside of the Package...”

Weights and measures regulations for declaration of identity and net quantity of contents require specified information to appear on the principal display panel. The declaration of responsibility may appear anywhere on the package. On this proposal the “declarations” are required to appear “on the outside of the package.” This is a new placement requirement, and for future reference, it would be helpful if the submitter provide a complete explanation as to why it requires a placement outside the requirement. OWM assumes this is a specific prohibition against putting any of the required information on the package, where it is in anyway obscured (on inner wrappings or behind a peel-up label such as you see on bottles of pain medication is not allowed). Are we correct in understanding this requirement to mean that no exemption will be allowed? If that is the intent, it would help if the Committee added that to the historical record of

the conference reports. They should indicate the submitter did not intend to allow any of information required under this section to be obscured in any way or presented on “easily” accessible inner labeling? We are asking for clarification because a similar question came up in a meeting with a cannabis packager who wanted to know some of the other information required under the UPLR information could be placed inside the package where it was still “easily” accessible like the peel-up labels consumers see on bottles of aspirin.

“Contains Cannabis”

In trying to understand how the requirement in Section 10. Exemptions, 10.XX Cannabis and Cannabis-Containing Products will interact with other requirements within the UPLR we referred to Section 3.1. “Declaration of Identity – Consumer Package” which requires a package to have a product identity on the principal display panel. The name for the product must be as listed in federal or state law, or the common or usual name or a generic name. The proposal reflects an ingredient labeling requirement that requires the words “Contains ‘*Cannabis*’” to be shown somewhere on the principal display panel. As the area of the label on small packages is already limited OWM asks the Committee if any consideration would be given to making this ingredient statement optional, if the product identity includes the term “*Cannabis*”?

Will placing the Delta-9 THC potency information on the bottom of the package or bottle be permitted?

One frequently asked question in labeling compliance is “may the declaration of responsibility (or other) information appear on the bottom of the box or bottle?” If it is acceptable for the potency or mg/serving information to appear on the bottom of the box or bottle the current language certainly permits that. If the Committee does not intend to permit any of the required information to appear on the bottom of the box or bottle OWM recommends that a specific prohibition to the regulation be added.

It is not clear as to what this proposal is trying to accomplish with regard to the exemption, making it difficult to assess the proposal. If the exemption is intended to apply to non-food products, then simply exempting non-food products would be sufficient. Without any other rationale to justify including it, referencing Section 10.9 adds unnecessary complexity to the requirement., making it difficult to assess the proposal. If companies are claiming or referencing clothing or other products has having “cannabis” in it/them, what is the intent of doing so? Are companies trying to imply some advantage or benefit? If so, how is the consumer to assess that benefit or advantage? Without such assessment criteria, might such claims be considered misleading?

We question how an inspector, or a company know when the exemption would/would not apply? It is not clear what is mean by the reference to “application.” This term needs to be better defined or explained. Does this include consumption? If so, might a better reference be “consumption or application?” If the intent is to only apply the requirement to “products for human consumption or application” then a simpler alternative might be to simply limit the paragraph accordingly. For example, “Cannabis and Cannabis-Containing Products Intended for Human Consumption or [Application].

Possibly the submitter can provide an additional background information or a justification explaining the rationale. Is this is needed in order for officials and industry to make an informed decision on the proposed requirement?

OWM does offer up an example with removing the exemption language:

10.XX. Cannabis and Cannabis-Containing Products – Any Cannabis or Cannabis-containing products, shall bear on the outside of the package the following:

(a) On the principal display panel

(i) The statement “Contains Cannabis.”

(b) On any panel or surface of the package

(i) The statement “Contains more than 0.3% Total Delta-9 THC” or “Contains 0.3% Total Delta-9 THC or less.”

(ii) A declaration of the number of milligrams of each marketed cannabinoid per serving or application.

Some additional comments and suggestions.

- In the proposal the term *Cannabis* is italicized. As mentioned in the OWM comments on Block 3, when readers see terms presented in italics in a regulation, they may interpret that to mean the same text also has to appear on the package label in italics. It may help to reduce confusion if the Committee makes it clear whether the term must appear on the package label in italics or not.
- The mg/serving statement should also be rewritten to use the term “quantity” instead of “number.” For example:

(ii) A declaration of the quantity in milligrams (mg) of each marketed cannabinoid per serving.

Test Methods

When adopting a regulation that requires packers to have the THC levels displayed on their packages it is essential that the Committee provide information on the acceptable test methods to be used for enforcement. When placing any regulation of this type, the States (as well as the cannabis industry), must be able to test and verify the labeled claim or the regulation will not provide the intended protections. OWM agrees this is an essential labeling requirement for this commodity and believes enforcement will be critical for use in ensuring safety and preventing fraud and unfair competition. To see why this regulation is justified the Committee should review the type of problems FDA is finding with CBD labeled products and strength claims at **Warning Letters and Test Results for Cannabidiol-Related Products | FDA**).

After reviewing the 2022 Interim L&R Report OWM is recommending formatting changes that is easier to follow and apply. These changes also correct grammar within the current proposal (e.g., line 14 states “less that”).

OWM has previously noted the term *Cannabis* being italicized. Is a requirement that it this term appear an italics style? If so, OWM recommends that the Committee add a statement to (a)(2) **The word Cannabis shall appear in capitalization and italics style.** If it is permissive the term “shall” could be replaced with “may”

10.XX. Cannabis and Cannabis-Containing Products – A Cannabis or Cannabis-containing product that is intended for human or animal consumption or application, the following information shall appear on the outside of the package:

(a) On the principal display panel

- (2) a statement “Contains Cannabis”;**
- (3) a statement with either “contains less than 0.3 % total delta-9 THC” or “contains 0.3 % or more total delta-9 THC”; and**

(b) On the back or side panel

- (1) a declaration of the labeled cannabinoid per serving or application; and**
- (2) the quantity declaration shall be in terms of milligrams.**

B3: MOS-22.2 – Section 1.XX. Cannabis and Cannabis-Containing Products and 2.XX. Cannabis and Cannabis-Containing Products.

OWM recommends that the Committee move only partial sections of this proposal forward as a Voting Item. The Committee will need additional time to address the requirements for limits on water activity, in additional answers to whether the state director’s authority under the State’s weights and measures law extends to promulgating the labeling requirements (e.g., warning statements, potency, ingredients and water activity) (see NIST OWM Comments in B3: PALS -22.1. Section 2. Definitions 2.XX Cannabis and Cannabis-Containing Products.”.)

As noted in the OWM comments on Block 3, we also highlighted below Item B3: PAL-22.1, water activity is associated with product quality and must be controlled by the packer of foods, drugs, and cosmetics to maintain product consistency and quality, and to avoid mold or product spoilage. These are health, safety, and other quality characteristics. The fundamental purpose of weights and measures laws is to ensure that declarations of **quantity** are accurate so consumers can make price and quantity comparisons which ensures equity and fair competition in the marketplace. Both Federal and State packaging and labeling laws require that reasonable variations in **quantity** caused by the loss or gain of moisture must be allowed if they increase or decrease the **quantity** of a desiccating product. Weights and measures law do not define how much moisture a product must contain but only how the loss or gain of moisture changes the **quantity** beyond reasonable limits. The laws were written to prevent economic fraud and typically do not to give weights and measures directors authority to expand inspection programs into other areas of regulation such as food safety or quality. Therefore, in general, weights and measures inspectors do not enforce ingredient, potency, drug content, safety labeling, and water activity on other products in the marketplace solely under labeling authority granted under their current weights and measures laws.

The Committee should request the NCWM Cannabis TG and the cannabis industry, and trade associations provide scientific studies and other information to justify and validate the limits of water activity requirements stated within the proposal. The Committee can have the data evaluated by a qualified panel of experts who could also assist in developing the justifications and technical language in the regulations. It is important to have due process and that growers, packers, distributors, retailers, and other stakeholders have adequate notice and an opportunity to comment on the water activity limits especially when violations of any regulations promulgated by the state may involve civil or criminal penalties including imprisonment.

In developing of any law or regulation, it is important to balance the risks to consumers against the potential penalties. Consideration should be given for alternative approaches in addressing the problems caused by water activity, in lieu of criminalizing violations to control product potency or prevent spoilage. In all scientific procedures there are measurement uncertainties that should be consideration before a person is exposed to criminal or civil prosecution. For these reasons, OWM recommends that the Committee seek out expert advice and establish reliable tolerances for water activity measurements to ensure both due process and fairness.

The Committee should also seek expert assistance in developing the inspection and sampling procedures necessary to carry out enforcement, in addition to providing guidance to the States on appropriate test procedures. If field testing is contemplated, guidance on test equipment specifications and tolerances must be developed. When setting equipment specifications and tolerances, consideration should be given to NIST Handbook 44, Appendix A. Fundamental Considerations, Section 3. "Testing Apparatus." In addition, the state metrology laboratory will need to be training and equipped to certify the devices used in field inspection. These important components should be developed and included with the water activity proposal before it is submitted for consideration to the NCWM. When a water activity limit is adopted, the states will be then be prepared to implement inspections and enforcement.

OWM commends the NCWM Cannabis Task Group for its outstanding work on developing these proposals. If these proposals move forward and the NCWM Cannabis Packaging and Labeling Subcommittee is disbanded, OWM recommends that Committee establish a Cannabis Packaging and Labeling Work Group within the Packaging and Labeling Subcommittee (PALS). This will allow the work to be closely integrated with the L&R Committee and allow it to better lead in its development of the water activity and moisture loss and gain projects. This will also allow for coordination in the development of the field inspection sampling and laboratory testing programs that will be

B3: NET-22.1.– HB133, Section 1.2.6. Deviations Caused by Moisture Loss or Gain and Section 2.3.8. Table 2-3 Moisture Allowances.

OWM is recommending this Item be removed from the Block 3 and returned to the Cannabis TG for further development.

For the reasons provided OWM does support the development of this proposal. As an interim measure the Committee can provide the values as guidance for state inspectors to use in their net quantity of contents inspections. OWM has provided similar guidance in the past for other products based on information from FDA.

- Since the 1980's, OWM has worked with NCWM on moisture loss studies beginning with the creation of the NCWM Task Force on Commodity Requirements. The NCWM Task Force developed the Guidelines for NCWM Resolution of Requests for the Recognition of Moisture Loss in Other Packaged Foods (see NIST Handbook, NCWM Policy, Interpretations and Guidelines Section 2.5.6. in VI at **00-20-h130-vi-final-4.pdf**) which the NCWM adopted in 1988. Since its adoption, industry who contacts OWM for advice on how moisture allowance is developed is advised to follow the NCWM guidance. The rice industry and bar soap manufacturers approached OWM for information and were provided this advice. The pet food industry and pasta industries have both followed the NCWM guidance for moisture loss recognition and have been successful with proposal for moisture allowances being adopted by NCWM. In the interest of due process, interest of its own guidelines, and the precedents it has followed for more than 33 years, OWM recommends the Committee advise the cannabis industry to apply the same NCWM guidance.

They would need to conduct a nationwide scientifically valid study that reflects regional environment and seasonal changes in humidity. Any studies should also consider the different types of packaging into consideration.

It does not appear that any supporting data based on any nationwide scientifically valid moisture loss and moisture gain studies on packaged cannabis was submitted with this proposal. Test procedures or limits on moisture loss or gain which are not based on scientifically established data, that occur during current good distribution practices, must be avoided as they likely violated due process (among other cases see especially *Cook Family Foods, Ltd. v. Voss*, 781 F. Supp. 1458 (C.D. Cal. 1991)). OWM is concerned that adding the proposed moisture allowances to NIST Handbook 133 without valid studies will make it difficult for the states to reduce or remove them in the future, if data from field testing or later research, indicates that they were either too large or too small.

- This proposal involves limits on moisture loss and moisture gain, and it is likely that two studies will be required. In the past, NCWM focused on moisture loss but with this is an area where limits on moisture gain will be established therefore different test conditions will need to be considered and test protocols developed. Typically, desiccating products regain moisture at a slower rate than they lose moisture, but that rate depends on several variables. A moisture gain study may take longer and be carried out in controlled environmental conditions. Regardless both studies must encompass the typical shelf life of the packaged product. If the studies are not done in a way that is scientifically valid, which represents real world conditions, and reflects the typical packaging and shelf-life of products, they will NOT protect consumers or packers. They will also not ensure inventory or taxes are accurately maintained. In fact, if the proposed limits are too small or too large, they could impose unjustifiably higher costs on packers and those costs will be passed onto consumers.
- A modification to NIST Handbook 133 procedures will need to be submitted for consideration. Current procedures are written to guide inspectors only on applying a moisture allowance when a sample has a negative average error.
- Enforcement of net weight regulations where a moisture allowance is in question, requires the inspector to obtain additional information on the sample and may involve seizing samples for testing and contacting the packer to obtain production records for review. This is in part as to why they are sometimes treated as tolerances which can facilitate fraudulent packaging practices. If an unscrupulous packer underfills packages 1 % when there is an overly generous 3 % moisture allowance that results in the packer's filling practice not being verified. Typically, officials will invest the time and effort into moisture loss (and here gain) investigations when they receive consumer or competitor complaints. Even more frequently when a reseller believes that a supplier has repeatably shipped them underweight packages. Complaints from business owners will also arise when a particular shipment of expensive products and the complainant suspects, unreasonably underweight packages. Inspectors also pursue these types of investigations if they suspect, based on past testing, that a packer has repeatably delivered underweight packages that fall within a specified moisture allowance.
- As noted above, it is important to stress that plus and minus values for moisture allowance are not tolerance limits. Under this moisture allowance approach inspectors will not be able to take enforcement actions as they currently do when using NIST Handbook 133. Since the 1970s, weights and measures has treated overweight and overfilled packages as being acceptable because overpacking is limited by the packer for economic reasons. Inspectors do not take action on

samples when the average error is positive (or when a minus error falls with the Sample Error Limit). Under this proposal inspectors will not be permitted to approve lots with positive average errors that fall within the 3 percent limit (for a 2 g package this 3 percent value = + 60 mg). Inspectors will not remove products from sale for being underweight within the 3 percent limit (– 60 mg) (unless the value is treated as a tolerance), until they take additional steps to find out more about the moisture content of the cannabis by consulting the packer to obtain production records, date of pack and inspection. They will also determine if the packer is following current good manufacturing and distribution practices and makes a determination that the overfilling or underfilling was reasonable or not. During this stage of the process the packaged goods are placed under a stop-sale-hold order and cannot be removed from the point of inspection until released.

- OWM recommends that the state directors be surveyed (see OWM general comments on Block 3 and WAM-22.2) to determine if they intend to have their inspectors take enforcement action on overweight packages of cannabis. If they do not implement this type of enforcement action for the reason, they doubt that the public or courts would find those cases justify prosecution, then the approach should probably not be added to NIST Handbook 133 and remain as guidance. The importance of limiting moisture gain could be well documented and presented as meriting enforcement action but any arguments would need to be persuasive. Taking enforcement action does occur when overpacking is used as an unfair trade practice (states have taken action against an ice packer who puts 10 lb of ice in a bag and then labels it 8 lb, and then advertises that the 8 lb bag lasts as long as a competitor 10 lb bag).
- This proposal raises another question for the Committee is when there are no Maximum Allowable Variations (MAV) for plus package errors. OWM recommends that the Committee study the idea of changing this approach and have the MAV values apply to both positive and negative package errors when packaged cannabis is being tested.
- OWM encourages the Committee to consider conducting a broad long-term study in cooperation with the cannabis industry to determine if the 10 percent MAV packages under 36 g is an appropriate for application to cannabis packages. Cannabis is packaged on modern high precision weighing instruments and variations in packaging fill that occur in current good manufacturing practice are likely to be much less than they were when the 10 percent MAV's for packages under 36 g was established in the early 1970s and at that time the data used was collected at both the point of pack and retail stores and included data for both small packages of foods and other consumer products. (note: for a 2 g package of cannabis the MAV is 200 mg))
- A reference to an acceptable moisture test procedure must be developed included in this proposal. The moisture loss approach in NIST Handbook 133 anticipates that samples may need to be taken and tested if there is a significant enforcement action contemplated. If an inspector repeatably finds minus package errors within the 3 percent limits (for a 2 g package of cannabis this is ± 60 mg) the inspector will collect a sample and compare the moisture content as found along with the moisture content at time of pack information provided by the packer. If there is a dispute the inspector can share a sample with the packer for testing and the two values can be intercompared to ensure the labs are in agreement. This may occur in a situation where the product is consistently found to be underweight, between 1 to 3 percent, on lots that were just delivered from the packer or where the inspector suspects someone is packing shortweight and claiming it is moisture loss. Procedures need to be known in advance, so the state metrology laboratory has the necessary test equipment and trained personnel available to perform the test promptly.

- In addition, adding a recognized moisture test procedure a detailed set of instructions for selecting and handling the moisture samples will need to be provided. If an inspector seizes samples for testing, they will need to follow good sampling procedures and handling practices to ensure the samples are protected and stored properly prior to and after testing. If there are legal or other restrictions that apply to the seizure, handling, storage, or transportation of cannabis samples then these can be included in the instructions to assist the inspector.
- **Water activity is not unique to Cannabis. Many (e.g., food) products have water activity that is needed to ensure quality and maximize shelf life. Water activity helps minimize texture changes, chemical reactions, and microbial spoilage.** Throughout the history of state weights and measures, it has not been under the authority of weights and measures to ensure compliance of commodities to ensure quality (texture changes, chemical reactions, and microbial spoilage). When a Cannabis product spoils, is the intent to call weights and measures in to investigate?
- The role, authority, and ability to carry out compliance by state weights and measures needs to be considered before adoption. Will proactive compliance testing be done, audit testing or will this be done on complaint only basis? It is clear to W&M as to the purpose. Consideration also needs to be given to how sampling will occur, how the lot is determined and whether a sample or the entire lot will fail. What are weights and measures protecting consumers and businesses from?
- The Item Under Consideration 1.XX.X. only specifies an upper limit of 0.65. Water activity contains a lower limit of 0.55 as well. If water activity is of concern, both the upper and lower limit should be addressed.

Water activity can change at any point during the supply chain, typically due to improper storage. Ultimately, it must be considered who will be held as the responsible party... the packers, distributor, seller, and whether specific requirements be added to ensure proper storage (e.g., relative humidity controls)?

Summary of Discussions and Actions:

At 2022 Interim some members expressed support for this block to be Voting status. They remarked that without this language, people were creating fraud in the marketplace by ripping consumers off with short-weight sales.” The Arizona Dispensary Association supported moving this item forward as a voting item and stated that it is a 1.4 to 1.5-billion-dollar industry in Arizona. Mr. Charles Rutherford (CPR Squared and, co-Chair of the NCWM Cannabis TG) supported moving this item forward as a voting item. He further stated that bad actors can manipulate the drug and sell underweight flowers. He also indicated that education and training was needed, and that regulation was critical to ensure that consumers were not being shorted. The American Trade Association for Cannabis and Hemp (ATACH) stated it was an important next step for regulating the industry.

Dr. Lippa (NIST OWM) responded to general comments and answered questions that were posed to OWM was to what OWM can do with language within the NIST Handbooks. Dr. Lippa stated that OWM is in discussion with NIST Office of Chief Counsel regarding the cannabis agenda items at NCWM.

There are a few things for NIST related work: development to standards materials, high and low THC, and standards. There needs to be a distinction of the THC level that is regulated by the Farm Bill and the Controlled Substance Act (CSA).

According to the CSA, high THC marijuana is an illegal drug and NIST cannot support guidance, training, and standards. Recognizing this issue, NIST will be able to publish Handbook 130 with this item, but they

will have to provide a disclaimer citing the CSA. OWM is in communication with NIST legal counsel on this matter and will continue to work and advice with NIST legal.

The Committee assigned Voting status for this item at the 2022 NCWM Interim meeting.

The Committee heard unanimous support for this item from Regulators and Industry who shared the need for it.

Regional Association Reporting:

Western Weights and Measures Association

At the 2021 WWMA Annual Meeting, Ms. Wendy Hahn, (County of Stanislaus, California) provided testimony regarding an editorial change in PAL 22.2 10.XX.(b) to change the word “that” to “than”. Ms. Hahn also expressed concern that the Items concerned with percentages of THC were of a more qualitative nature and not necessarily within the purview of weights and measures. Mr. Kurt Floren (Los Angeles County, California) addressed the comments and concerns on quality issues as a general matter is not our purview in weights and measures. He mentioned how quality issues are a purview of weights and measures in matters of fuel with octane levels and viscosity of oils that must meet standards. He mentioned that this would be similar in Cannabis, in that THC levels are a part of the identity of the product, and that it is an important component in determining the value and allowing for value comparison. Mr. Floren stated that States are in different stages of regulation, and there is going to be a need for uniform standards. The goal of these regulations is to create acceptable uniformity that can be applied to this unique product. Mr. Charlie Rutherford (Co-Chair of Cannabis TG, CPR²) provided testimony that supported Mr. Kurt Floren’s comments by drawing a comparison of THC content to the proof of alcohol and it being an important aspect of value comparison. He mentioned that cannabis is a unique industry with a high black-market value and that it is unique with regards to water activity and that regulations regarding water activity are needed to help avoid manipulation. Ms. Cadence Matijevich (Nevada) provided testimony that the State of Nevada’s Department of Agriculture does not have authority over cannabis packaging and labeling regulations, that it is under the purview of the Nevada Cannabis Commission, but that they are willing to participate in drafting regulations. Mr. Joe Moreo (Trinity County, California) provided testimony that different species of Cannabis should also be provided in the definition of the Cannabis and Cannabis Products. He suggested including Cannabis indica and Cannabis ruderalis. Ms. Lisa Warfield (NIST OWM) provided testimony that was based on the OWM Analysis that was submitted as the supporting documentation.

The Committee recommends this Item be Assigned to the Cannabis Task Group. We recommend the National NCWM L&R Committee consider the following:

- The need to establish an authority in the Uniform Weights and Measures law to provide jurisdictions with authority to enforce the proposed regulations.
- Conduct outreach to state authorities and the industry groups to gain a deeper understanding of the issues pertaining to this item.
- Conduct a survey of the jurisdictions, where the following items are addressed:
- Have Directors consult with their department’s attorney to determine if adding the definition and other Cannabis proposed requirements to the uniform packaging and labeling regulation or method of sale for commodities regulations will cause a conflict with other state laws or regulations.

- Establishing the method of sale by weight and establishing minimum load requirement to NIST Handbook 44 are of course within weights and measures authority but some of the labeling and method of sale requirements may not be within the current regulatory authority of some weights and measures programs.
- The most significant question is if state's weights and measure law authorize the director to adopt rules and regulations that require ingredient labeling, safety warnings, potency declarations and if they allow the director to establish and enforce water activity limits and verify potency labeling.

Many of the State's weights and measures laws may not give the state director authority to regulate the types of Cannabis labeling. Amended language will be required to the Uniform Weights and Measures Law to add the needed authority. The following proposed language from the OWM analysis supporting documentation is recommended by the Committee:

Section 11. Powers and Duties of the Director

The Director shall:

(c) for Cannabis and Products Containing Cannabinoid(s)

(1) Prescribe by regulation:

- i. reasonable variations in quantity caused by the loss or gain of moisture during current good distribution practice or by unavoidable deviations in current good manufacturing practice and procedures for moisture determination;
- ii. labeling requirements for and defining reasonable variations in water activity that occur in current good manufacturing practice and current good distribution practice and procedures for the measurement of water activity;
- iii. labeling requirements for and define reasonable variations in levels of cannabinoid: delta-9 THC, delta-8 THC (potency) that occur in current good manufacturing practice and current good distribution practice and procedures for the measurement of potency; and
- iv. packaging and labeling requirements that may include, among other requirements, the characteristics of the packaging (e.g., color) and type of packaging (e.g., tamper evident, childproof), requirements for identity, ingredients, product lot code and date of packaging, contact information of the packer, special symbols or warnings, and potency. The requirements may also include prohibitions on packaging that may be misleading or confusing.

(2) The Director may prescribe by regulation, programs that utilize accredited testing laboratories and may enter into agreements to utilize conformity assessment programs and other technical services to ensure compliance with any of the prescribed requirements.

PAL 22.1-: The agenda item title should be corrected to: **B3: PALS -22.1. Section 2. Definitions 2.XX Cannabis and Cannabis-Containing Products.**

The Committee recommends that the Task Group consider altering the definition of “Cannabis and Cannabis Containing Products” utilizing the minor edits presented in the OWM Analysis supporting documentation. The Committee also recommends including the comments from Mr. Joe Moreo during open hearing testimony that other species of the Cannabaceae family such as, Cannabis indica and Cannabis ruderalis may need to be included in the definition.

2.XX. Cannabis and Cannabis-Containing Products – Cannabis is a genus of flowering plants in the family Cannabaceae, of which Cannabis sativa, Cannabis indica, Cannabis ruderalis ~~is~~ are a species. This definition includes products that contain 0.3 percent or less of Total Delta-9 THC (also known as Hemp) and products that contain more than 0.3 percent of Total Delta-9 THC (also known as Cannabis, Marijuana or Marihuana).

PAL 22.2-: The agenda item title should be corrected to: **Section 10. Exemptions, 10.XX Cannabis and Cannabis-Containing Products.**

The Committee recommends that the Cannabis TG consider altering the proposed language for this item. The intent of the item and the language is unclear, and the Committee recommends that the Cannabis TG review the language and the questions posed in the OWM analysis supporting documentation, to clarify intent and comprehensively address exemptions.

MOS 22.2- The Committee feels that this item is mostly developed but has concerns regarding the parts that address water activity. The Committee recommends that Cannabis TG review the OWM analysis supporting documentation and address questions regarding water activity including test procedures.

NET 22.1- The agenda item title should be corrected to: **B3: NET-22.1. HB133, Section 1.2.6. Deviations Caused by Moisture Loss or Gain and Section 2.3.8. Table 2-3 Moisture Allowances.**

The Committee recommends that this item be further developed. The Committee recommends reviewing the OWM analysis supporting documentation and addressing the concerns with testing procedure, testing equipment, and the need for technical studies regarding moisture loss and gain.

Central Weights and Measures Association

At the 2021 CWMA Interim Meeting, Mr. Doug Musick (Kansas) commented that he shared this language with a co-worker who regulates hemp. **CFR 990.1** defines total delta 9 THC. Mr. Loren Minnich (Kansas) commented that Kansas defines Cannabis in a way that allows the sale of a different compounds similar to cannabis, and he thinks it should be considered in the development of this item. Dr. Matt Curran (Florida regulator and member of the NCWM Cannabis task force) commented that the USDA CFR reference of total delta 9 applies to growth of crops only. Dr. Curran further commented that the term cannabinoids reference a broader group of products since states vary. Mr. Mike Harrington (Iowa) supports the item and believes it should move forward as a voting item. Ms. Lisa Warfield (NIST OWM) commented that there are already regulations that can apply to the sale of any item, but each product is not listed. There are also package and labeling regulations currently in the handbook. OWM requests that states provide input to NCWM as to whether adding definitions would be problematic or conflicting within their states. Ms. Warfield further commented that new language was submitted through WWMA and NEWMA, and that the CWMA L&R Committee consider these changes. She asked that the Committee move the water proposal out of Block 3 and consider it separately. Dr. Curran commented that several of comments in the NIST analysis were inaccurate or unclear. He proceeded to address some of those comments, particularly related to water activity. Dr. Curran clarified that this item refers to the plant itself – not as an ingredient. He also commented that it is important for the regulatory community to remain relevant in the marketplace

by developing code in a timely manner. Mr. Rutherford commented that there are supporting documents from large industry representatives that support the water activity language in this item. He also commented that consumers are being cheated and these items need to be adopted. Mr. Charlie Stutesman (Kansas) commented that he believes waiting on further development puts us even farther behind where commerce currently is. Mr. Ivan Hankins (Iowa) supports the item moving forward with voting status and suggests the development of a handbook for states who regulate cannabis.

Based on comments during open hearings, supporting documents and discussions, the Committee believes this item is fully developed and ready for voting status.

At the 2022 CWMA Annual Meeting, Ms. Warfield recommended this as a Developing item or Assigned to the Cannabis Task Group to obtain additional information that OWM has recommended in their analysis. She read the following statement from NIST OWM.

“Cannabis” Statement from NIST OWM:

As a non-regulatory metrology institute, NIST defers to federal agencies with regulatory authority under the Controlled Substances Act (CSA) for the scheduling of drugs or other substances. NIST does not have a policy role related to the production, sale, distribution, or use of cannabis (including hemp and marijuana).

While the 2018 Farm Bill removed hemp from the list of controlled substances under Schedule 1 of the CSA, marijuana remains on that list. NIST must respect that distinction even as it exercises its statutory authority to develop and disseminate national weights and measures standards for the production, distribution, and sale of products in the commercial marketplace.

NIST remains committed to providing technical assistance to the weights and measures community. OWM has provided key technical points for the community to consider in its deliberations of cannabis-related proposals, and OWM would be happy to provide any necessary clarification. OWM comments are intended to encourage technically sound application of legal metrology laws, regulations, and practices to the measurement and sale of these products.

Ms. Warfield commented on the following:

PAL 22.2 Section 10 Requirements 10.XX Cannabis and Cannabis Containing Products

After reviewing the 2022 Interim L&R Report OWM is recommending formatting changes that are easier to follow and apply. This also corrected some of the grammar (e.g., line 14 states “less than”). In (b) is uses the term “marketed”, a proper term would be “of the labeled cannabinoid.”

The Committee discussed Ms. Warfield’s suggested changes and recommends the item remain a Voting item with the following revisions to the version appearing on the current agenda:

10.XX. Cannabis and Cannabis-Containing Products – Any Cannabis or Cannabis-containing products intended for human or animal consumption or application, shall ~~bear~~ appear on the outside of the package the following information:

(a) On the principal display panel

(3) (i) The a statement “Contains *Cannabis*”;

(4) ~~(ii)~~ The a statement with either “contains less than 0.3 % total delta-9 THC” or “contains 0.3 % or more total delta-9 THC”; and

(c) On the back or side panel

(1) a declaration of the marketed labeled cannabinoid per serving or application; and

(2) the quantity declaration shall be in terms of milligrams.

Southern Weights and Measures Association

At the 2021 SWMA Annual Meeting the L&R Committee recommends the block as a voting item, with the following language changes to the following sections:

PAL-22.1

The committee wants to consider the suggestion from the OWM to change from the symbol for percent (%) to the written word percent. In addition, change the word “section” to “definition”. The suggested language would read as follows:

2.XX. *Cannabis* and *Cannabis*-Containing Products – *Cannabis* is a genus of flowering plants in the family Cannabaceae, of which *Cannabis sativa* is a species. This definition includes products containing more than 0.3 percent Total Delta-9 THC (also known as *Cannabis*, *Marijuana* or *Marihuana*) and products containing 0.3 percent or less Total Delta-9 THC (also known as *Hemp*).

PAL-22.2

10.XX. *Cannabis* and *Cannabis*-Containing Products- Any *Cannabis* or *Cannabis*-containing products, with the exception of commodities listed under Section 10.9 Textile Products, Threads and Yarns and other non-food products not intended for human or animal application, shall bear on the outside of the package the following:

(a) On the principal display panel

(i) The statement “Contains *Cannabis*.”

(b) On any panel or surface of the package

(i) The statement “Contains more that 0.3% Total Delta-9 THC” or “Contains 0.3% Total Delta-9 THC or less.”

(ii) A declaration of the number of milligrams of each marketed cannabinoid per serving or application.

MOS-22.2

1.XX.X. Water Activity-When unprocessed *Cannabis*, is kept, offered, or exposed for sale, sold, bartered, or exchanged, or ownership transfers, the water activity shall be 0.6 ($\pm$ 0.05).

2.XX.X. Water Activity-When unprocessed *Cannabis*, is kept, offered, or exposed for sale, sold, bartered, or exchanged, or ownership transfers, the water activity shall be 0.6 ($\pm$ 0.05).

The Committee believes this Item Block 3 (B3) is fully developed and recommends it to go to the NCWM L&R Committee with a Voting status. The Committee recommends the Cannabis TG take into consideration recommendations from the OWM analysis, i.e., the survey to State Directors, this could help identify the need for development of items in other sections of the Handbooks, i.e., Powers and Duties of the Director.

Northeastern Weights and Measures Association

At the 2021 NEWMA Interim Meeting, Mr. Jim Cassidy (NCWM Cannabis WG Co-chair) commented that these items are fully developed and ready for Voting status. Dr. Matt Curran (Florida and a member of the National Cannabis WG) concurred. Mr. David Sefcik (NIST OWM) commented that the NIST analysis is comprehensive and was provided to help see potential problems with some of the items as well as recommended solutions. Among the recommendations are to reach out to various stakeholders; distribute a survey to industry members to gather information regarding labeling authority; add a section to the weights and measures law (see WAM – NEW 1). Mr. Sefcik suggested that these block items be considered separately on individual merit – some are more ready than others for Voting status. There are also suggested corrections to the titles for PAL 22.1., PAL 22.2., and NET 22.1. Dr. Curran commented that much work has already been done by ASTM and numerous comments have been received to develop these items for model regulation. He believes it is important to establish these items as a start. Mr. Charlie Rutherford (CPR Squared and Co-Chair – NCWM Cannabis WG) commented that the answers to several of NIST's questions and comments have already been addressed and he has sources that can provide additional information. He further commented that consumers across various states are being shorted and deceived, and he believes this is a very timely issue and should move forward. Mr. Ivan Hankins, (NCWM Chair and Iowa regulator) commented that he supports moving these items forward with Voting status.

Ms. Warfield commented that there are typographical errors in the title of these block items. The Committee recognizes and supports the corrections as they appear in the WWMA Report. Ms. Warfield also expressed concern that there are additional areas that appear in the NIST analysis in this block of items that should not be overlooked. Dr. Curran reviewed the recommended changes in the NIST analysis and is agreeable to NIST's proposed changes. Ms. Warfield suggested adding a Section 11. Powers and Duties of the Director, in the Uniform Weights and Measures Laws. Mr. Marc Paquette (Vermont) and Ms. Cheryl Ayer (New Hampshire) have no objections to the proposed changes in the NIST analysis. Dr. Curran suggested changes to the NIST recommended language in Section 11. These changes are captured in the amended language below. Mr. Sefcik asked if Section 11 should be its own proposal because it does not fall under UPLR subject matter. Mr. Sefcik further suggested that the word “number” be changed to “quantity” in PAL 22.2.(b) (ii). Mr. McGuire proposed that Section 10.XX along with the revised wording from Dr. Curran from Section B; Section C wording be changed from “number” to “quantity”; and adding a new Section 11 from the NIST analysis all be revised. Mr. Mike Sikula (New York) expressed concern for states who do not have a cannabis program and do not recognize it yet as a legal substance for commercial sale. He wondered if adding this section to the Method of Sale in Handbook 130 would somehow unintentionally require them to enforce a substance not legal for commerce in their states.

In PAL 22.1, OWM recommends that the definition in 2.X.X. Cannabis and Cannabis Containing Products be reordered to provide clarity. The proposed wording below is recommended by the Committee:

2.XX. Cannabis and Cannabis-Containing Products – Cannabis is a genus of flowering plants in the family Cannabaceae, of which Cannabis sativa, Cannabis indica, Cannabis ruderalis is are a species. This definition includes products that contain 0.3 percent or less of Total Delta-9 THC (also known as Hemp) and products that contain more than 0.3 percent of Total Delta-9 THC (also known as Cannabis, Marijuana or Marihuana.

NEWMA recommends the following new language for PAL-22.2.:

Section 10. Requirements: Specific Consumer Commodities, Non-Consumer Commodities, Packages and Containers

10.XX. Cannabis and Cannabis-Containing Products – Any Cannabis or Cannabis-containing products, shall bear on the outside of the package the following:

(a) On the principal display panel

(i) The statement “Contains Cannabis.”

(b) On any panel or surface of the package

(i) The statement “Contains more that 0.3 % Total Delta-9 THC” or “Contains 0.3% Total Delta- 9 THC or less.”

(ii) A declaration of the quantity of milligrams of each marketed cannabinoid

(Added 20XX)

MOS 22.2

Ms. Warfield commented that there are recommended changes from NIST in their analysis of this item. Mr. Sefcik commented that there were questions raised regarding water activity and product quality and believes these items should be further considered. Dr. Matt Curran commented that not only is water activity a quality issue, but also a quantity issue just as moisture content is in many other commodities. He commented that ASTM has developed a standard (D8917) for moisture content and water activity and these block items only apply to the cannabis product itself but not as an ingredient in another item such as brownies, etc. Mr. Rutherford concurred with Dr. Curran’s statements and believes the ASTM standard will prevent consumer fraud and misinformation. Mr. Sefcik commented that laws and regulations have been written to prevent economic fraud rather than to address quality and safety issues. He believes that water activity could fall under the same quality-related category. He stated that there needs to be test equipment, procedures, and reliable tolerances for water activity measurements for enforcement purposes. Mr. Rutherford commented that ASTM has developed a specification for this issue (D8196) and test procedure (D8197). Dr. Curran commented that he believes these issues are relevant to the work of the weights and measures community. ASTM standards can be included and referenced in the Handbook much as they are with fuels. The Committee believes this item is fully vetted and ready for Voting status.

NET 22.1

Mr. Sefcik commented that this item seeks to set a moisture allowance (loss or gain) and to his knowledge no work has been done or data provided to determine support the proposed plus or minus allowance. It appears to be arbitrary. Mr. Sikula concurs with Mr. Sefcik and also questioned if water activity and moisture content are the same thing? Dr. Curran commented that water activity is free water available in

the product. Moisture content measures the content of water in the product. Ms. Ayer asked if it is necessary for the lower-case cannabis to be used in parenthesis. Dr. Curran suggested it was a way to clarify terms. Mr. Rutherford commented that the TG believes the item is developed “enough” to be granted Voting status to have something in place to combat consumer fraud. Ms. Warfield recommended removal of the allowance in Table 2.3 and that it be placed in its own table. She asked who would be responsible for training. She believes the item is not ready for voting and needs further work. Mr. McGuire and Mr. Sikula (New York) both support Assigned status. The Committee recommends this item – NET 22.1 only - be given Assigned status and referred to the Cannabis Task Group for further data.

The Committee recommends that this item be further developed and Assigned to the Cannabis TG. The Committee recommends that the TG review the OWM analysis for this item and address the need for technical studies (data) for moisture loss and gain.

At the 2022 NEWMA Annual Meeting, Mr. McGuire noted that the NCWM Cannabis Work Group, NCWM L&R Committee and the NEWMA L&R Committee recommends removing this block and making them individual items to ensure each item is fully considered. Mr. James Cassidy (Co-Chair NCWM Cannabis TG and Massachusetts) stated that for Block 3, and in order to keep these items moving he, on behalf of the NCWM Cannabis Task Group recommend that these items be removed as a block item and become individual voting items to facilitate the items for voting when they are ready. In light of these comments, each item in the block was opened individually for comments during open hearings.

Mrs. Tina Butcher (NIST OWM) stated: “As a non-regulatory metrology institute, NIST, defers to federal agencies with regulatory authority under the Controlled Substances Act (CSA) for the scheduling of drugs or other substances. NIST does not have a policy role related to the production, sale distribution, or use of cannabis (including hemp and marijuana).”

While the 2018 Farm Bill removed hemp from the list of controlled substances under Schedule 1 of the CSA, marijuana remains on that list. NIST must respect that distinction even as it exercises its statutory authority to develop and disseminate national weights and measures standards for the production, distribution and sale of products in the commercial marketplace.

NIST remains committed to providing technical assistance to the weights and measures community. OWM has provided key technical points for the community to consider in its deliberations of cannabis-related proposals, and OWM would be happy to provide any necessary clarification. OWM comments are intended to encourage technically sound application of legal metrology laws, regulations, and practices to the measurement and sale of these products.”

PAL 22.1. Section 2. Definitions 2.XX Cannabis and Cannabis-Containing Products.

Mr. Jim Willis (New York) stated he believes this item is fully developed and many members have seen these items. These are generally accepted numbers for THC. No additional comments received during the open hearing. NEWMA L&R Committee recommends this item continues to be a voting item.

PAL 22.2 Section 10. Requirements Section 10. Requirements, 10.XX Cannabis and Cannabis Containing Products

No additional comments received during the open hearing. NEWMA L&R Committee recommends this item continues to be a voting item.

MOS 22.2. Section 1.XX. Cannabis and Cannabis-Containing Products and 2.XX. Cannabis and Cannabis-Containing Products

Mr. Jason Flynn (New Jersey) noted that on page 129 of the NEWMA L&R Committee submission, Section 1.XX.X Water Activity, line 16, language describes the latest version of Water Activity. In reference to ASTM D8197, questions whether we should reference the ASTM standard or include the verbiage since ASTM standards are regularly updated. NEWMA L&R Committee believes that to be consistent with the rest of the NIST Handbook 130 referencing the ASTM Standard is the appropriate method. No additional comments received during the open hearing. NEWMA L&R Committee recommends this item continues to be a Voting item.

NET 22.1 – HB133, Section 1.2.6. Deviations Caused by Moisture Loss or Gain and Section 2.3.8. Table 2-3

Mr. Cassidy noted that his Co-Chair of the work group continues to work on this item dealing with moisture content and notes that moisture in the case of cannabis is the opposite of what weight and measures is familiar with (moisture loss vs. moisture content). He related an analogy as to how a humidor operates to protect cigars, so cannabis needs to have a certain moisture content to be a viable product and needs to be tested that way. Mr. Cassidy questioned NIST's role in publishing these items as follows:

Mrs. Butcher responded to Mr. Cassidy stating, "Once the National Conference of Weights and Measures votes and passes specific language, it is NIST's intent to publish the content, subject to legal review, reflecting that NIST does not have a policy role as to marijuana's status as a Schedule 1 controlled substance."

No additional comments received during the open hearing. NEWMA L&R Committee recommends this item continues to be an Assigned item.

ITEM BLOCK 4 (B4) EPA CFR REFERENCE UPDATES

- | | | |
|--------------|---|--|
| B4: MOS-22.1 | V | Section 2.20.2. Documentation for Dispenser Labeling Purposes. and 2.20.3. EPA Labeling Requirements. |
| B4: FLR-22.1 | V | Section 2.1.2. Gasoline-Ethanol Blends., 3.2.5. Documentation for Dispenser Labeling Purposes, and 3.2.6. EPA Labeling Requirements. |

Purpose and Justification:

Provide current references to CFR regulations to maintain alignment with Federal EPA regulations.

EPA has changed the location of 40 CFR Part 80 fuel requirements currently referenced in NIST HB 130 to a new location, 40 CFR Part 1090. Beginning January 1, 2021, the references in 40 CFR Part 80 became obsolete. In addition, the Government Printing Office will be removing the text of the old references to the expired 40 CFR Part 80 sections beginning January 1, 2022. For NCWM to have the correct references in the Handbook, these citations must be updated to the new citation. Failure to do so in NIST Handbooks can cause regulatory confusion. In addition, certain states are already considering revising their state laws and regulations to update these expired citations.

On December 4, 2020, the U. S. Environmental Protection Agency published a Final Rule, Fuels Regulatory Streamlining, (85 FR 78412). The purpose of the rule was to update and modernize EPA's existing gasoline, diesel, and other fuel regulations and remove inconsistencies. Under the EPA Fuels Regulatory

Streamlining Rule, the majority of fuels provisions were relocated from 40 CFR Part 80 to a new 40 CFR Part 1090.

FALS formed an EPA Streamlining Focus Group in January 2021 in response to the EPA Fuels Regulatory Streamlining Rule. The purpose of the Focus Group was to review Handbook 130 and determine what updates are necessary to align NIST Handbooks with the new EPA Streamlining Rule. The Focus Group analyzed all of EPA's new Fuels Streamlining regulation and what changes were needed in Handbook 130 and concluded that the only items needing to be updated were to correct obsolete references to the Code of Federal Regulations.

Because NIST HB 130 is not "EPA centric", there are only 3 individual references that need to be updated in HB 130. Since these 3 references are repeated in different sections and Chapters of HB 130, there are only a total of 7 references needing to be corrected for all of Handbook 130 to align with EPA's Fuels Streamlining regulation. There are no other revisions necessary currently.

The recommendations of the FALS Focus Group were submitted by the EPA Streamlining Focus Group to the FALS Chair and were widely disseminated. They were also discussed at the FALS meeting during the Annual Meeting and were approved during the meeting for submission to the Laws and Regulations Committee.

The text of the actual red-line changes and proposed revisions are provided below. NCWM voted to adopt by reference these specific sections of EPA fuel requirements several years ago with the intent to maintain consistency between these EPA regulations and Handbook 130 without the need for additional action by NCWM.

In updating the reference to the correct number, the Conference would merely be continuing its decision to adopt these referenced sections by correcting the individual citations. The three sections of 40 CFR Part 80 that were renumbered to 40 CFR Part 1090 by EPA and incorporated by reference into Handbook 130 are as follows:

- 40 CFR Part 80.27(d) which grants a 1.0 psi RVP waiver for gasoline containing specific percentages of ethanol is now found in 40 CFR 1090.215(b)
- 40 CFR Part 80.1501 which covers EPA labeling requirements for certain ethanol blends is now found in 40 CFR Part 1090.1510
- 40 CFR Part 80.1503 which covers requirements for product transfer documents is now found in 40 CFR Part 1090.1110

These references occur in the following sections of NIST Handbook 130:

- NIST Handbook 130 "Uniform Fuels and Automotive Lubricants Regulation" Sections:
 - 2.1.2. Gasoline-Ethanol Blends
 - 3.2.5. Documentation for Dispenser Labeling Purposes
 - 3.2.6. EPA Labeling Requirements
- NIST Handbook 130 "Uniform Method of Sale of Commodities" Sections:

- 2.20.2 Documentation for Dispenser Labeling Purposes
- 2.20.3 EPA Labeling Requirements

The obsolete fuel quality regulations contained in **40 CFR Part 80** are currently published on the Electronic Code of Federal Regulations (www.ecfr.gov) website. The replaced references in 40 CFR Part 80 will be removed from the Code of Federal Regulations and will no longer be accessible on January 1, 2022.

The proposed updates were presented to the Fuels and Lubricants Subcommittee (FALS) by its EPA Streamlining Focus Group during the FALS meeting held at the July 2021 meeting of the National Conference on Weights and Measures. During that meeting, FALS endorsed sending the proposed revisions forward for adoption and inclusion in HB 130. That action was summarized in the Report of FALS to the Laws and Regulations Committee. While there was a question as to whether to revise terminology, that was determined by FALS to be outside of the scope of these EPA streamlining changes.

The submitter requested that this be a Voting Item in 2022.

OWM Executive Summary for Item Block 4. EPA CFR Reference Updates.	
OWM Recommendation: OWM is recommending a minor editorial change that was raised at the 2022 CWMA Annual Meeting to the title of Section 2.20. This does not reflect the full language of Section 2.20. The title of Section 2.20. Gasoline-Oxygenate Blends. Mr. Corr is recommended at the CWMA 2022 Annual Meeting that the title read, "Gasoline and Gasoline-Oxygenate Blends.	

Table 3. Summary of Recommendations							
Item Block 4 – EPA CFR Reference Updates							
	V	D	W	A	I	Note*	Comments
Submitter	✓						
OWM	✓						
WWMA	✓						
NEWMA	✓						
SWMA	✓						
CWMA	✓						
NCWM	✓						
*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:

B4: MOS-22.1 – Section 2.20.2. Documentation for Dispenser Labeling Purposes. and 2.20.3. EPA Labeling Requirements.

2.20.2. Documentation for Dispenser Labeling Purposes. – The retailer shall be provided, at the time of delivery of the fuel, on product transfer documents such as an invoice, bill of lading, shipping paper, or other documentation:

- (a) Information that complies with 40 CFR ~~80.1503~~ 1090.1110 when the fuel contains ethanol.
- (b) For fuels that do not contain ethanol, information that complies with 40 CFR ~~80.1503~~ 1090.1110 and a declaration of the predominant oxygenate or combination of oxygenates present in concentrations sufficient to yield an oxygen content of at least 1.5 mass percent in the fuel. Where mixtures of only ethers are present, the fuel supplier may identify either the predominant oxygenate in the fuel (i.e., the oxygenate contributing the largest mass percent oxygen) or alternatively, use the phrase “contains MTBE or other ethers.”
- (c) Gasoline containing more than 0.15 mass percent oxygen from methanol shall be identified as “with” or “containing” methanol.

(Added 1984) (Amended 1985, 1986, 1991, 1996, ~~and~~ 2014, and 20XX)

2.20.3. EPA Labeling Requirements. – Retailers and wholesale purchaser-consumers of gasoline shall comply with the EPA pump labeling requirements for gasoline containing greater than 10 volume percent (v%) up to 15 volume percent (v%) ethanol (E15) under 40 CFR ~~80.1504~~ 1090.1510. (For additional information, refer to Section 2.30.2. FTC Labeling Requirements.)

(Added 2018) (Amended 20XX)

B4: FLR-22.1 V Sections 2.1.2. Gasoline-Ethanol Blends., 3.2.5. Documentation for Dispenser Labeling Purposes, and 3.2.6. EPA Labeling Requirements.

2.1.2. Gasoline-Ethanol Blends. – When gasoline is blended with denatured fuel ethanol, the denatured fuel ethanol shall meet the latest version of ASTM D4806, “Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel,” and the blend shall meet the latest version of ASTM D4814, “Standard Specification for Automotive Spark-Ignition Engine Fuel,” with the following permissible exceptions:

- (a) The maximum vapor pressure shall not exceed the latest version of ASTM D4814, “Standard Specification for Automotive Spark-Ignition Engine Fuel,” limits by more than 1.0 psi for blends from June 1 through September 15 as allowed by EPA per 40 CFR ~~80.27(d)~~ 1090.215(b).

(Amended 2016, 2018, ~~and~~ 2019, and 20XX)

3.2.5. Documentation for Dispenser Labeling Purposes. – For automotive gasoline, automotive gasoline-oxygenate blends or racing gasoline, the retailer shall be provided, at the time of delivery of the fuel, on product transfer documents such as an invoice, bill of lading, shipping paper, or other documentation:

(a) Information that complies with 40 CFR ~~80.1503~~1090.1110 when the fuel contains ethanol.
(Added 2014) (**Amended 20XX**)

(b) For fuels that do not contain ethanol, information that complies with 40 CFR ~~80.1503~~1090.1110 and a declaration of the predominant oxygenate or combination of oxygenates present in concentrations sufficient to yield an oxygenate content of at least 1.0 % by volume in the fuel. Where mixtures of only ethers are present, the fuel supplier may identify either the predominant oxygenate in the fuel (i.e., the oxygenate contributing the largest mass percent oxygen) or alternatively, use the phrase “contains MTBE or other ethers.”
(Added 2014) (**Amended 20XX**)

(c) Gasoline containing more than 0.3 % by volume methanol shall be identified as “with” or “containing” methanol.

(Added 2014) (Amended 2018)

(Amended 1996, 2014, and 2018)

3.2.6. EPA Labeling Requirements. – Retailers and wholesale purchaser-consumers of gasoline shall comply with the EPA pump labeling requirements for gasoline containing greater than 10 volume percent (v%) up to 15 volume percent (v%) ethanol (E15) under 40 CFR ~~80.1501~~1090.1510. (For additional information, refer to Section 3.8.2. FTC Labeling Requirements.)

(Added 2012) (Amended 2018 **and 20XX**)

(Amended 2018 **and 20XX**)

NIST OWM Detailed Technical Analysis:

OWM believes the adoption of these amendments will ensure that references to Federal regulations in the Method of Sale of Commodity and Uniform Engine Fuels and Automatic Lubricants Regulations are updated are cited with accurate references. OWM recommends that this proposal be made a Voting item.

OWM suggests that when regulations are under revision that consideration be given to making them useable and easier for regulated businesses to comply and for inspectors to understand and enforce. The purpose statement for this proposal is to provide for a method of sale to ensure consistency with Federal and industry requirements. However, there are no industry standards included within the proposed language. For regulations to provide due process they must be written so they provide adequate notice to regulated businesses as to what they are required to do, to comply with the law. Finding specific requirements in the Code of Federal Regulations (CFR) is much easier if the citations are provided in a format as OWM proposes below for Item Block B4: MOS-22.1. “Section 2.20.2. Documentation for Dispenser Labeling Purposes. and 2.20.3. EPA Labeling Requirements.”

For example, OWM searched the CFR and found:

- The FTC regulations in Title 16 CFR “Commercial Practices” Part 306 – “Automotive Fuel Rating, Certification and Posting” and there are specific labeling requirements for Biodiesel found in Appendix A. “Summary of Labeling Requirements for Biodiesel Fuels.”

- The EPA regulations in Title 40 CFR “Protection of the Environment” Part 1090 “Regulation of Fuels, Fuel Additives, and Regulated Blendstocks” Subpart P – “Retailer and Wholesale Purchaser-Consumer Provisions” in §1090.1515 “Diesel Sulfur Labeling Provisions”

OWM recommends that the Committee make it easier for regulated businesses to search the CFR in order to find the requirements and facilitate voluntary compliance. OWM recommends the proposal include the citations for the regulations for EPA and FTC product identity (and any specific industry standards as well if that is the submitter’s intent). OWM recommends with these changes that the Committee make this a Voting item.

For the convenience of the Committee, the URL for the Code of Federal Regulations (CFR) is: <https://www.ecfr.gov/>.

At the 2022 CWM Annual Meeting, Mr. Corr cited specific regulations within the Item Under Consideration. In addition to the changes cited by Mr. Corr, OWM recommends some additional formatting changes be included considered.

2.20.2. Documentation for Dispenser Labeling Purposes. – The retailer shall be provided, at the time of delivery of the fuel, on product transfer documents such as an invoice, bill of lading, shipping paper, or other documentation:

- (a) Information that complies with 40 CFR ~~80.1503~~ **§ 1090.1110 Product Transfer Documents, Requirements for Gasoline, Gasoline Additives, and Gasoline Regulated Blendstocks** ~~the fuel contains ethanol.~~
- (b) For fuels ~~that do not contain ethanol~~ **containing oxygenates other than ethanol**, information that complies with 40 CFR ~~80.1503~~ **§ 1090.1110 Product Transfer Documents Requirements for Gasoline, Gasoline Additives, and Gasoline Regulated Blendstocks** and a declaration of the predominant oxygenate or combination of oxygenates present in concentrations sufficient to yield an oxygen content of at least 1.5 mass percent in the fuel. Where mixtures of only ethers are present, the fuel supplier may identify either the predominant oxygenate in the fuel (i.e., the oxygenate contributing the largest mass percent oxygen) or alternatively, use the phrase “contains MTBE or other ethers.”
- (c) Gasoline containing more than 0.15 mass percent oxygen from methanol shall be identified as “with” or “containing” methanol.

(Added 1984) (Amended 1985, 1986, 1991, 1996, and 2014, **and 20XX**)

2.20.3. EPA Labeling Requirements. – Retailers and wholesale purchaser-consumers of gasoline shall comply with the EPA pump labeling requirements for gasoline containing greater than 10 volume percent (v%) up to 15 volume percent (v%) ethanol (E15) under 40 CFR ~~80.1501~~ **§ 1090.1510 E15 Labeling Provisions**. (For additional information, refer to Section 2.30.2. FTC Labeling Requirements.)

(Added 2018) (**Amended 20XX**)

B4: FLR-22.1 – Sections 2.1.2. Gasoline-Ethanol Blends, 3.2.5. Documentation for Dispenser Labeling Purposes, and 3.2.6. EPA Labeling Requirements.

2.1. Gasoline and Gasoline-Oxygenate Blends.

2.1.2. Gasoline-Ethanol Blends. – When gasoline is blended with denatured fuel ethanol, the denatured fuel ethanol shall meet the latest version of ASTM D4806, “Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel,” and the blend shall meet the latest version of ASTM D4814, “Standard Specification for Automotive Spark-Ignition Engine Fuel,” with the following permissible exceptions:

- (a) The maximum vapor pressure shall not exceed the latest version of ASTM D4814, “Standard Specification for Automotive Spark-Ignition Engine Fuel,” limits by more than 1.0 psi for blends from June 1 through September 15 as allowed by EPA per 40 CFR ~~80.27(d)~~ § 1090.215(b) Gasoline RVP Standards.

(Amended 2016, 2018, ~~and~~ 2019, and 20XX)

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

...

3.2.5. Documentation for Dispenser Labeling Purposes. – For automotive gasoline, automotive gasoline-oxygenate blends or racing gasoline, the retailer shall be provided, at the time of delivery of the fuel, on product transfer documents such as an invoice, bill of lading, shipping paper, or other documentation:

- (a) Information that complies with 40 CFR ~~80.1503~~ § 1090.1110 Product Transfer Documents, Requirements for Gasoline, Gasoline, Gasoline Additives, and Gasoline Regulated Blendstocks when the fuel contains ethanol.

(Added 2014) (Amended 20XX)

- (b) For fuels containing oxygenates other than ethanol that do not contain ethanol, information that complies with 40 CFR ~~80.1503~~ § 1090.1110 Product Transfer Documents, Requirements for Gasoline, Gasoline, Gasoline Additives, and Gasoline Regulated Blendstocks and a declaration of the predominant oxygenate or combination of oxygenates present in concentrations sufficient to yield an oxygenate content of at least 1.0 % by volume in the fuel. Where mixtures of only ethers are present, the fuel supplier may identify either the predominant oxygenate in the fuel (i.e., the oxygenate contributing the largest mass percent oxygen) or alternatively, use the phrase “contains MTBE or other ethers.”

(Added 2014) (Amended 20XX)

- (c) Gasoline containing more than 0.3 % by volume methanol shall be identified as “with” or “containing” methanol.

(Added 2014) (Amended 2018)

(Amended 1996, 2014, ~~and~~ 2018, and 20XX)

3.2.6. EPA Labeling Requirements. – Retailers and wholesale purchaser-consumers of gasoline shall comply with the EPA pump labeling requirements for gasoline containing greater than 10 volume percent (v%) up to 15 volume percent (v%) ethanol (E15) under 40 CFR ~~80.1501~~ § 1090.1510 E15 Labeling Provisions. (For additional information, refer to Section 3.8.2. FTC Labeling Requirements.)

(Added 2012) (Amended 2018 and 20XX)

(Amended 2018)

Summary of Discussions and Actions:

FALS Chair Striejewske provided some background information to how this item was developed through FALS. This item was submitted by the FALS EPA Streamline FG to recommend replacement language for an obsolete reference.

Mrs. Marilyn Herman (President Herman Associates and FALS Streamline FG Chair) believes this item is fully developed and will correct out of date references in NIST Handbook 130. EPA's promulgation of the EPA streamlining rule occurred and the history is within the background information. This combines several different rules under one CFR. ASTM revised is standard specification for gasoline oxygenated blends to incorporate the rule. This is new and is under ASTM 4814.21 c since most state adopt the most recent version and NIST HB 130 incorporates the most recent version, this has major impact.

Mr. Chuck Corr (Iowa Renewable Fuels) agreed that these items were not editorial in nature when they were addressed in July 2021, and there is considerable difference between the text of the regulation currently cited and the proposed replacement. Mr. Corr also asked the following questions:

1. Are the federal fuel laws and regulations important in the context of Handbook 130? FLR 2.1.1 references a specific federal law and 2.1.2 references a specific federal regulation. If all of the federal laws and regulations are important, would it not be easier to just have a simple statement.

A possible approach is to have a statement at the beginning of fuels and lubes section of handbook 130. All fuels, blendstocks, and additives shall comply with applicable federal laws and regulations. Examples of these regulations are 40 CFR parts 79 and 80 and 16 CFR part 306.

2. Are only a few federal fuel laws and regulations important enough to be referenced in NIST HB 130?
 - a. Which laws and regulations are important enough to warrant reference in NIST Handbook 130?
 - b. What criteria is used to make this distinction?

Regarding terminology there are differences between NIST Handbook 130 and EPA regulations? NCWM should seek to harmonize the terminology of the handbook with that in the federal regulations

Mr. Corr does feel that the new CFR 1090 regulation misrepresents the regulation. He believes that if referencing the regulation is important then additional changes are needed to properly represent this regulation, therefore request this item be made developmental.

Several recognized the comments made by Mr. Corr and hopes the Committee recognizes the need for additional review and discussion.

Many regulators and industry rose in support of this item. The Committee assigned Voting status for this item at the 2022 Interim Meeting. The Committee assigned Voting status to this item because it heard favorable comment without opposition and believes it is fully developed.

Regional Association Reporting:

Western Weights and Measures Association

At the 2021 WWMA Annual Meeting, the Committee heard many comments in support of this item. The Committee recommends this as a Voting item.

Central Weights and Measures Association

At the 2021 CWMA Interim Meeting, Mr. Randy Jennings (representing FALS) gave a background on this item, and FALS recommends this item move forward as a voting item. Ms. Marilyn Herman (Herman & Associates as chair of the FALS EPA Streamlining Rule Task Group) commented that the task group supports this item moving forward as a voting item. Mr. Chuck Corr (Iowa Renewable Fuels Association) commented that he believes there is an error in FAL 22.1 (2.20.3 should be stricken and made 3.2.6). He further commented that the new EPA citation reference contains more information than the old citation, and he is concerned it will be more confusing. He is proposing changes which he indicated were relatively minor but further clarify the intent. Mr. Charlie Stutesman (Kansas) commented that incorporating references in HB 130 rather than listing out the actual language was already adopted by the Conference. He believes the item is ready for voting status. Mr. Jennings commented that the scope of the task group was to change the reference from Part 80 to Part 1090 and to make sure there were no unintended consequences. Ms. Kristy Moore (Growth Energy) commented that she has additional questions about Part 1090 and wonders if regulators understand that 1090 might broaden their responsibilities. Mr. Mike Harrington (Iowa) commented that he believes the item needs to be developed. Ms. Tamara Paik (Marathon) commented that as a regulated entity they must comply with both federal and state regulation, and she believes that if there are further discussions to be had on the issue, they should occur. Ms. Rebecca Richardson (NBB and member of the FALS EPA Streamlining task group) commented that while there are issues to consider in Part 1090, the purpose of the focus group was to make sure nothing that was in the handbook was omitted as the reference moved from Part 80 to 1090. Mr. Ron Hayes, retired regulator from Missouri concurs. The Committee believes this item has been fully developed and ready for voting status.

At the 2022 CWMA Annual Meeting, Mr. Corr provided some revisions to the proposal for the Committee to consider. Mr. Stutesman commented that he agrees that including the full title of sections of the CFR in the model regulation is helpful. He supports moving forward with the item with the revisions Mr. Corr has proposed. Mr. Konrad Crockford (North Dakota) agreed with the amended changes. Mr. Russ Lewis, (Marathon Petroleum) commented that if this amended language slows down adoption of this, that it not be included. Ms. Kristy Moore (Growth Energy) commented that she is opposed to putting EPA regulation in state code but has no objections to these amended changes. Mr. Corr's modifications are:

B4: MOS-22.1

B. Uniform Regulation for the Method of Sale of Commodities

2.20. Gasoline and Gasoline-Oxygenate Blends.

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

the predominant oxygenate. Where mixtures of only ethers are present, the retailer may post the predominant oxygenate followed by the phrase “or other ethers” or alternatively post the phrase “contains MTBE or other ethers.” In addition, gasoline-methanol blend fuels containing more than 0.15 mass percent oxygen from methanol shall be identified as “with” or “containing” methanol. This information shall be posted on the upper 50 % of the dispenser front panel in a position clear and conspicuous from the driver’s position in a type at least 12.7 mm ($\frac{1}{2}$ in) in height, 1.5 mm ($\frac{1}{16}$ in) stroke (width of type).

(Amended 1996)

2.20.2. Documentation for Dispenser Labeling Purposes. – The retailer shall be provided, at the time of delivery of the fuel, on product transfer documents such as an invoice, bill of lading, shipping paper, or other documentation:

- (a) Information that complies with 40 CFR 1090.1110 PTD requirements for gasoline, gasoline additives, and gasoline regulated blendstocks ~~40 CFR 80.1503 when the fuel contains ethanol.~~
- (b) For fuels containing oxygenates other than ethanol ~~that do not contain ethanol~~, information that complies with 40 CFR 1090.1110 PTD requirements for gasoline, gasoline additives, and gasoline regulated blendstocks ~~40 CFR 80.1503~~ and a declaration of the predominant oxygenate or combination of oxygenates present in concentrations sufficient to yield an oxygen content of at least 1.5 mass percent in the fuel. Where mixtures of only ethers are present, the fuel supplier may identify either the predominant oxygenate in the fuel (i.e., the oxygenate contributing the largest mass percent oxygen) or alternatively, use the phrase “contains MTBE or other ethers.”
- (c) Gasoline containing more than 0.15 mass percent oxygen from methanol shall be identified as “with” or “containing” methanol.

(Added 1984) (Amended 1985, 1986, 1991, 1996, and 2014, and 20XX)

2.20.3. EPA Labeling Requirements. – Retailers and wholesale purchaser-consumers of gasoline shall comply with the EPA pump labeling requirements for gasoline containing greater than 10 volume percent (v%) up to 15 volume percent (v%) ethanol (E15) under 40 CFR ~~80.1504~~ 1090.1510 E15 labeling provisions. (For additional information, refer to Section 2.30.2. FTC Labeling Requirements.) (Added 2018) (Amended 20XX)

B4:FLR-22.1

F. Uniform Fuels and Automotive Lubricants Regulation

2.1. Gasoline and Gasoline-Oxygenate Blends.

2.1.2. Gasoline-Ethanol Blends. – When gasoline is blended with denatured fuel ethanol, the denatured fuel ethanol shall meet the latest version of ASTM D4806, “Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel,” and the blend shall meet the latest version of ASTM D4814, “Standard Specification for Automotive Spark-Ignition Engine Fuel,” with the following permissible exceptions:

- (a) The maximum vapor pressure shall not exceed the latest version of ASTM D4814, “Standard Specification for Automotive Spark-Ignition Engine Fuel,” limits by more than 1.0 psi for blends from June 1 through September 15 as allowed by EPA per 40 CFR ~~80.27(d)~~ 1090.215(b) ***Gasoline RVP standards.***

(Amended 2016, 2018, ~~and~~ 2019, and 20XX)

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

3.2.5. Documentation for Dispenser Labeling Purposes. – For automotive gasoline, automotive gasoline-oxygenate blends or racing gasoline, the retailer shall be provided, at the time of delivery of the fuel, on product transfer documents such as an invoice, bill of lading, shipping paper, or other documentation:

- (a) Information that complies with 40 CFR 1090.1110 PTD requirements for gasoline, gasoline additives, and gasoline regulated blendstocks ~~40 CFR 80.1503 when the fuel contains ethanol.~~

(Added 2014) (Amended 20XX)

- (b) For fuels containing oxygenates other than ethanol ~~that do not contain ethanol,~~ information that complies with 40 CFR 1090.1110 PTD requirements for gasoline, gasoline additives, and gasoline regulated blendstocks ~~40 CFR 80.1503~~ and a declaration of the predominant oxygenate or combination of oxygenates present in concentrations sufficient to yield an oxygenate content of at least 1.0 % by volume in the fuel. Where mixtures of only ethers are present, the fuel supplier may identify either the predominant oxygenate in the fuel (i.e., the oxygenate contributing the largest mass percent oxygen) or alternatively, use the phrase “contains MTBE or other ethers.”

(Added 2014) (Amended 20XX)

- (c) Gasoline containing more than 0.3 % by volume methanol shall be identified as “with” or “containing” methanol.

(Added 2014) (Amended 2018)

(Amended 1996, 2014, and 2018)

3.2.6. EPA Labeling Requirements. – Retailers and wholesale purchaser-consumers of gasoline shall comply with the EPA pump labeling requirements for gasoline containing greater than 10 volume percent (v%) up to 15 volume percent (v%) ethanol (E15) under 40 CFR ~~80.1504~~ 1090.1510 E15 labeling provisions. (For additional information, refer to Section 3.8.2. FTC Labeling Requirements.)

(Added 2012) (Amended 2018 and 20XX)

(Amended 2018)

The Committee recommends this item remain a Voting item as it is presented in the agenda.

Mr. Corr’s proposed amended language will be submitted as a supporting document to this report for consideration at a later date

Southern Weights and Measures Association

At the 2021 SWMA Annual Meeting, Mr. Prentiss Searles (API) and Mr. Randy Jennings (FALS) both spoke in support of this as a Voting item. NIST OWM provided written analysis that recommended that this proposal be made a Voting item.

The Committee believes this item has merit and is fully developed. The Committee recommends this item as a Voting Item.

Northeastern Weights and Measures Association

At the 2021 NEWA Interim Meeting, Mr. Randy Jennings (retired Tennessee) commented that FALS Chair Striejewski asked him to relay that these items have already been fully vetted and are ready for Voting status. Mr. John McGuire (New Jersey) supports the items moving forward as a Voting status. Mr. Chuck Corr (Iowa RFA) commented that there are considerable differences between the old citation number and the new citation number being proposed here, and he believes this could cause confusion among regulators. He believes the items need further development. Mr. Mike Sikula (New York) supports the items but wants to hear from Mr. Corr the differences between the old citation and the new citation. Mr. Corr believes that the new citation number references a much broader code. Mr. Jennings commented that the language in the new citation reference is a very close match to the old reference. Ms. Marilyn Herman (past Chair FALS EPA Streamlining FG) stated the FG had reviewed the language in both CFR codes and agreed that there were no substantial changes between former and new CFR renumbered sections. Ms. Herman commented that the EPA Streamlining FG has nothing more to pursue on this item. Ms. Tamara Paik (Marathon Petroleum) commented that she supported this item moving forward as a Voting item. The Committee recommends this item move forward with Voting status.

At the 2022 NEWMA Annual Meeting, Ms. Kristy Moore (Growth Energy) noted that NEWMA and NCWM has been working on this item “wrestling with this item” and she supports this item. No additional comments received during the open hearing.

ITEM BLOCK 6 (B6) TRANSMISSION FLUID

B6: MOS-21.1. A Section 2.36.2. Labeling and Identification of Transmission Fluid

B6: FLR-21.2. A Section 3.14.1. Labeling and Identification of Transmission Fluid

Source: Missouri Department of Agriculture

Purpose and Justification:

Protect consumers by providing a cautionary statement of package labels of obsolete transmission fluids. Cautionary statements regarding obsolete products are currently required for tractor hydraulic fluids and are under consideration for motor oil. A cautionary statement and its position on the product label are currently not required for Transmission fluid in either the Method of Sale, or Fuels and Lubricants Regulations. This proposal will protect consumers by ensuring they are informed when purchasing transmission fluids.

The submitter acknowledged that there may be argument that there is not sufficient space on the front package label for a cautionary statement.

The submitter requested voting status for this item in 2021.

OWM Executive Summary for Section Item Block 6 Transmission Fluid
NOTE: The original submitter of this Item was Missouri Department of Agriculture. The source should read the Fuels and Lubricants Subcommittee. OWM supports the continued work of Transmission Fluid Focus Group.
OWM Recommendation: OWM recommends this as Assigned Item.

Table 3. Summary of Recommendations							
Item Block 6 (B6) – Transmission Fluid							
	V	D	W	A	I	Note*	Comments
Submitter							
OWM							
WWMA							
NEWMA				✓			
SWMA							
CWMA				✓			
NCWM							
*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:

B6: MOS-21.1. A Section 2.36.2. Labeling and Identification of Transmission Fluid

2.36.2. Labeling and Identification of Transmission Fluid. – Transmission fluid shall be labeled or identified as described below.

(Added 2017)

2.36.2.1. Container Labeling. – The label on a container of transmission fluid shall not contain any information that is false or misleading. Containers include bottles, cans, multi-quart or liter containers, pails, kegs, drums, and intermediate bulk containers (IBCs). In addition, each container of transmission fluid shall be labeled with the following:

- (a) the brand name;
- (b) the name and place of business of the manufacturer, packer, seller, or distributor;

- (c) the words “Transmission Fluid,” which may be incorporated into a more specific description of transmission type such as “Automatic Transmission Fluid” or “Continuously Variable Transmission Fluid”;
- (d) the primary performance claim or claims met by the fluid and reference to where any supplemental claims may be viewed (for example, website reference). Performance claims include but are not limited to those set by original equipment manufacturers and standards setting organizations such as SAE and JASO and are acknowledged by reference; and
- (e) an accurate statement of the quantity of the contents in terms of liquid measure.
- (f) **Any obsolete equipment manufacturer specifications shall be clearly identified as “obsolete” and accompanied by the following cautionary statement on the principal display in accordance with the Uniform Packaging and Labeling Regulation, Section 8. Prominence and Placement: Consumer Packages and Section 9. Prominence and Placement: Non-Consumer Packages.**

Caution: Some of the specifications are no longer deemed active by the original equipment manufacturer. Significant harm to the transmission is possible when using in applications in which it is not intended. Always refer to your vehicle owner’s manual for proper transmission fluids.

The above ~~warning~~ cautionary statement is not required if the fluid claims to meet current original equipment manufacturer’s specifications and refers to thereby preceding specifications

(Added 20XX)

(Added 2017 **and Amended 20XX**)

B6: FLR-21.2. A Section 3.14.1. Labeling and Identification of Transmission Fluid

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

3.14.1. Labeling and Identification of Transmission Fluid. – Transmission fluid shall be labeled or identified as described below

(Added 2017)

3.14.1.1. Container Labeling. – The label on a container of transmission fluid shall not contain any information that is false or misleading. Containers include bottles, cans, multi-quart or liter containers, pails, kegs, drums, and intermediate bulk containers (IBCs). In addition, each container of transmission fluid shall be labeled with the following:

- (a) the brand name;
- (b) the name and place of business of the manufacturer, packer, seller, or distributor;
- (c) the words “Transmission Fluid,” which may be incorporated into a more specific description of transmission type such as “Automatic Transmission Fluid” or “Continuously Variable Transmission Fluid”;

- (d) the primary performance claim or claims met by the fluid and reference to where any supplemental claims may be viewed (e.g., website reference). Performance claims include but are not limited to those set by original equipment manufacturers and standards setting organizations such as SAE and JASO and are acknowledged by reference; and
- (e) an accurate statement of the quantity of the contents in terms of liquid measure.
- (f) **Any obsolete equipment manufacturer specifications shall be clearly identified as “obsolete” and accompanied by the following cautionary statement on the principal display panel in accordance with the Uniform Packaging and Labeling Regulation, Section 8. Prominence and Placement: Consumer Packages and Section 9. Prominence and Placement: Non-Consumer Packages.**

Caution: Some of the specifications are no longer deemed active by the original equipment manufacturer. Significant harm to the transmission is possible when using in applications in which it is not intended. Always refer to your vehicle owner’s manual for proper transmission fluids.

The above cautionary statement is not required if the fluid claims to meet current original equipment manufacturer’s specifications and refers to thereby preceding specifications

(Added 20XX)

(Amended 2017 **and 20XX**)

NIST OWM Detailed Technical Analysis:

NIST supports the work of the Focus Group and encourages them to work with industry to reach for recommended language for inclusion into the NIST Handbook.

Summary of Discussions and Actions:

At the 2021 NCWM Interim Meeting, Mr. Ron Hayes (retired) provided an overview to the Committee regarding the issue with obsolete fluids in the marketplace. He also remarked that at the CWMA 2020 Meeting he with worked with Ms. Warfield (NIST OWM) to clarify the language in the first paragraph of (f). Ms. Warfield (NIST OWM) remarked that the language should be clear and conspicuous following the UPLR. Ms. Warfield had noted that UPLR does not have specifications for color however, Section 8. does state it must be conspicuous. It was unknown whether this product type include both consumer and non-consumer type packaging. Ms. Johanna Johnson would like additional time to reach consensus with industry regarding to align terminology (e.g., obsolete, current, active). Ms. Johnson requested the Committee provide this with an informational status.

The Committee reviewed the following item for consideration in NCWM Publication 15 (2021):

- (e) **Any obsolete equipment manufacturer specifications shall be clearly identified as “obsolete” and accompanied by the following warning on the principal display panel in clearly legible font size and color as stated in Uniform Packaging and Labeling Regulation 8.2.2.**

Caution: Some of the specifications are no longer deemed active by the original equipment manufacturer. Significant harm to the Transmission is possible when using in applications in which it is not intended. Always refer to your vehicle owner's manual for proper transmission fluids.

The above warning is not required if the fluid claims to meet current original equipment manufacturer's specifications and refers to thereby preceding specifications
(Added 20XX)

It was agreed by the Committee that this language should be identical to the language that was just voted in at the 2020 NCWM Annual Meeting within Item Block 2. Tractor Hydraulic Fluid.

The Committee provided this a status of Assigned and would like FALS to further evaluate with recommendations that Ms. Johnson provides. The Committee would like FALS to review the language to see if this product includes consumer and non-consumer type packaging. Many spoke in support of how this item will be developed through FALS.

At the 2021 NCWM Annual Meeting, FALS Chair Striejewske provided an updated that Ms. Johnson provided an update of the FG work to date. The FG has concluded that the model regulation in the handbook is sufficient, but there is no licensing system for transmission fluid as there is for engine oil. Transmission fluids have been found in the marketplace in Missouri that are not suitable for use in some transmissions. The group is working to harmonize the various standards across the industry. Several OEM specifications have been found and are being categorized. This work is ongoing, and no further action was taken by the Committee.

Regional Association Reporting:

Western Weights and Measures Association

At the 2021 WWMA Annual Meeting, Mr. Russ Lewis (API) provided testimony in support of this Block moving forward as a Voting Item. Dr. Striejewske (FALS Chair) stated that this Item Block has been assigned to FALS, and that the item is being worked on by a Task Group led by Joanna Johnson from the AOCA. Mr. Ron Hayes (Retired, Missouri) stated as part of the Task Group they are working on a list with Allan Morrison (CDFA – DMS). Remarked that the list is comprised of both current and obsolete automatic transmission fluids. The Committee recommends that this item remain Assigned. The Committee supports the work that the FALS Subcommittee is conducting.

Central Weights and Measures Association

At the 2021 CWMA Interim Meeting, Mr. Hayes commented that there have been several meetings related to this issue, and he and Mr. Morrison are working on a list of specifications for all existing transmission fluids for engines. He believes the item is fully developed and is ready for voting status pending the completion of the list of specifications for transmission fluids for engines. Ms. Joanna Johnson (Automotive Oil Change Association, and chair of the FALS Transmission Fluid Focus Group) made several comments. The FG does not recommend the current language because there is no clear distinction or understanding of the definition of obsolete. The FG is supportive of developing the complete list of specifications to see if there is a way to distinguish ones that are not fit for purpose or should be considered obsolete, and the engine manufacturers will comply with. Based on comments provided during open hearings, the Committee recommends the item remain Assigned to the focus group.

At the 2022 CWMA Annual Meeting, there were no comments heard on this item. The Committee recommends keeping this Assigned.

Southern Weights and Measures Association

At the 2021 SWMA Annual Meeting, Mr. Prentiss Searles (API) is in support of this item remaining as Assigned. NIST OWM provided written analysis supporting the development of this Blocked item through FALS. The Committee recommends this item to remain Assigned.

Northeastern Weights and Measures Association

At the 2021 NEWMA Interim Meeting, Mr. Hayes provided an update on this item. Ms. Joanna Johnson (TG Chair) submitted a statement that Mr. Hayes read. Ms. Warfield commented that she recommended the item move forward with Voting status provided the list of obsolete transmission fluids is completed by April 2022 (deadline for NCWM Publication 16). Mr. McGuire supports NIST's recommendation as a Voting item, as does the Committee.

At the 2022 NEWMA Annual Meeting, no comments received during the open hearing.

References:

- [1] NIST OWM Analysis and Final reports www.nist.gov/pml/weights-and-measures/publications/owm-technical-analysis
- [2] 1905-2021 NCWM Annual Conference reports www.nist.gov/pml/weights-and-measures/publications/ncwm-annual-reports
- [3] National Conference on Weights and Measures (2022) Publication 15 and 16.
<https://www.ncwm.com>

Appendix: Supplemental Documents

- A. Block 3. WAM-22.2 – Section 11. Powers and Duties of the Director and Block 3. Cannabis: Florida Department of Agriculture – Re: Cannabis Agenda Items Submitted by the NCWM Cannabis Task Group, dated 12/7/2021
- B. NET 22.2. 3.X. Gravimetric Test Procedure for Viscous and Non-Viscous Liquids by Portable Digital Density Meter. NIST OWM proposal for consideration at the 2022 NCWM Annual Meeting.