

## **CWMA Laws and Regulations (L&R) Committee 2016 Interim Meeting Report**

Lori Jacobson, Committee Chair  
South Dakota

### **2000 INTRODUCTION**

The Laws and Regulations (L&R) Committee (hereinafter referred to as “Committee”) submits its Report to the Central Weights and Measures Association (CWMA). The Report consists of the CWMA Agenda (NCWM Carryover and NEW items) and this Addendum. Page numbers in the tables below refer to pages in this Addendum. Suggested revisions to the handbook are shown in **bold face print** by ~~striking out~~ information to be deleted and **underlining** information to be added. Requirements that are proposed to be nonretroactive are printed in **bold-faced italics**.

Presented below is a list of agenda items considered by the CWMA and its recommendations to the NCWM Laws and Regulations Committee.

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Uniform Weighmaster Law .....	2202 Series
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**Table B**  
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<b>Acronym</b>	<b>Term</b>	<b>Acronym</b>	<b>Term</b>
AKI	Minimum Antiknock Index	MPFS	Meat, Poultry, Fish, and Seafood
API	American Petroleum Institute	OEM	Original Equipment Manufacturer
ASTM	ASTM International	OIML	International Organization of Legal Metrology
CFR	Code of Federal Regulations	NCWM	National Conference on Weights and Measures
CNG	Compressed Natural Gas	NEWMA	Northeastern Weights and Measures Association
CRC	Coordinating Research Council	NIST	National Institute of Standards and Technology
CWMA	Central Weights and Measures Association	OWM	Office of Weights and Measures
FALS	Fuels and Lubricants Subcommittee	PALS	Packaging and Labeling Subcommittee
FDA	Food and Drug Administration	S&T	Specifications and Tolerances
FPLA	Fair Packaging and Labeling Act	SP	Special Publication
FTC	Federal Trade Commission	SWMA	Southern Weights and Measures
HB	Handbook	TG	Task Group
FG	Focus Group	UPLR	Uniform Packaging and Labeling Regulation
L&R	Laws and Regulations	USNWG	U.S. National Work Group
LNG	Liquefied Natural Gas	WG	Work Group
MAV	Maximum Allowable Variation	WWMA	Western Weights and Measures Association

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**Details of All Items**  
(In order by Reference Key)

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**2301 NIST HANDBOOK 130 – UNIFORM PACKAGING AND LABELING REGULATION**

**New-1 10.4. Multi-unit Retail Packages**

**Source:**

Counties of Monterey and Ventura, California (2017)

**Purpose:**

Harmonize with FDA’s preemptive language in 21 CFR 101.105(s)

**Item under Consideration:**

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

**10.4. Multi-unit Retail Packages.** <sup>[NOTE 7, page 74]</sup> – Any package containing more than one individual “commodity in package form” (see Section 2.1. Package) of the same commodity shall bear on the outside of the package a declaration of:

- (a) the number of individual units;
- (b) the quantity of each individual unit; and
- (c) the total quantity of the contents of the multi-unit package.

**Example:**

soap bars, 6 Bars, Net Wt 100 g (3.53 oz) each  
total Net Wt 600 g (1.32 lb).

The term “total” or the phrase “total contents” may precede the quantity declaration.

A multi-unit package containing unlabeled individual packages which are not intended for retail sale separate from the multi-unit package may contain, in lieu of the requirements of section (a), a declaration of quantity of contents expressing the total quantity of the multi-unit package without regard for inner packaging. For such multi-unit packages it shall be optional to include a statement of the number of individual packages when such a statement is not otherwise required by the regulations.

**Examples:**

Deodorant Cakes –  
5 cakes, Net Wt 113 g (4 oz) each, Total Net Wt 566 g (1.25 lb); or  
5 cakes, Total Net Wt 566 g (1 lb 4 oz)

Soap Packets –  
10 packets, Net Wt 56.6 g (2 oz) each, Total Net Wt 566 g (1.25 lb); or Net Wt 566 g (1 lb 4 oz); or  
10 packets, Total Net Wt 566 g (1 lb 4 oz)

(Amended 1993)

**NOTE 7:** For foods, a “multi-unit” package means a package containing two or more individually packaged units of the identical commodity in the same quantity, intended to be sold as part of the multi-unit package but

*labeled to be individually sold in full compliance with this regulation. Open multi-unit retail food packages under the authority of the FDA or the USDA that do not obscure the number of units or prevent examination of the labeling on each of the individual units are not required to declare the number of individual units or the total quantity of contents of the multi-unit package if the labeling of each individual unit complies with requirements so that it is capable of being sold individually. (See also Section 11.11. Soft Drink Bottles and Section 11.12. Multi-Unit Soft-Drink Bottles.)*

(Added 1984)

**Background/Discussion:**

This will allow for the UPLR to be identical to FDA's preemptive regulation on multi-unit retail packages in 21 CFR 101.105(s) {refer to box 20}.

Growers and producers are using a Product Traceability Initiative (PTI) sticker (2016 Food Safety Modernization Act requirement - <http://www.fda.gov/Food/GuidanceRegulation/FSMA/default.htm>) that also doubles for identity, responsibility and quantity (IRQ) requirements. Producers are no longer putting all multi-unit requirements from HB 130, Section 10.4. (omitting term "bag or counts" and total count) on their agricultural packages. This issue is prevalent in California, Arizona, Texas, and Florida.

21 CFR 101.105(s). which is presented here:

*[Code of Federal Regulations]*

*[Title 21, Volume 2]*

*[Revised as of April 1, 2015]*

*TITLE 21--FOOD AND DRUGS, CHAPTER I--FOOD AND DRUG ADMINISTRATION DEPARTMENT OF HEALTH AND HUMAN SERVICES*

*SUBCHAPTER B--FOOD FOR HUMAN CONSUMPTION*

*PART 101 -- FOOD LABELING*

*Subpart G--Exemptions From Food Labeling Requirements - 21 CFR Sec. 101.105 Declaration of net quantity of contents when exempt.*

*(s) On a multiunit retail package, a statement of the quantity of contents shall appear on the outside of the package and shall include the number of individual units, the quantity of each individual unit, and, in parentheses, the total quantity of contents of the multiunit package in terms of avoirdupois or fluid ounces, except that such declaration of total quantity need not be followed by an additional parenthetical declaration in terms of the largest whole units and subdivisions thereof, as required by paragraph (j)(1) of this section. A multiunit retail package may thus be properly labeled: "6-16 oz bottles--(96 fl oz)" or "3-16 oz cans--(net wt. 48 oz)". For the purposes of this section, "multiunit retail package" means a package containing two or more individually packaged units of the identical commodity and in the same quantity, intended to be sold as part of the multiunit retail package but capable of being individually sold in full compliance with all requirements of the regulations in this part. Open multiunit retail packages that do not obscure the number of units or prevent examination of the labeling on each of the individual units are not subject to this paragraph if the labeling of each individual unit complies with the requirements of paragraphs (f) and (i) of this section. The provisions of this section do not apply to that butter or margarine covered by the exemptions in 1.24(a) (10) and (11) of this chapter.*

**CWMA 2016 Report:**

Item New-1
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
An industry representative from Procter and Gamble commented that this item seems confusing and isn't sure what it accomplishes that isn't already included in Handbook 130. A regulatory official from Minnesota agrees the item is not necessary. A regulatory official from South Dakota commented that the Handbook already applies to retail sales

only and doesn't understand the point. An Iowa regulator agreed. A Kansas official commented that he thinks this item is intended to align Handbook 130 with other federal regulatory language. A South Dakota regulator added that their state is looking at the Food Safety Modernization Act (FSMA) to determine how it will impact inspections in their state. A regulator from Missouri suggested this item be withdrawn until it is further developed.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b> <input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input checked="" type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b> The Committee believes this item needs to be further developed before revisions can be presented.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>
<b>Regional recommendation to NCWM for item status:</b> <input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input checked="" type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> ) <input type="checkbox"/> Unable to consider at this time ( <i>Provide explanation in the "Additional Comments" section below</i> )
<b>Regional Report to NCWM:</b> Several regulators commented they were unsure about the intent of this item, and that it does not add anything that isn't already included in Handbook 130.

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

## 2302 NIST HANDBOOK 130 – UNIFORM REGULATION FOR THE METHOD OF SALE COMMODITIES

### 2302-1 D 1. Food Products and Section 2. Non-Food Products

**Source:**

Los Angeles County, California (2016)

**Purpose:**

Clarify and formalize the long-standing, fundamental, core tenet of legal metrology and weights and measures regulation that the sale of any commodity, in any form or by any method, be according to legally-recognized, traceable units of measure.

**Item under Consideration:**

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

**Section 1. Food Products**

**(a) Any food product, whether sold from bulk or in packaged form, shall be sold only in a unit of measure or weight that meets all of the following criteria:**

- (1) Is recognized and defined by NIST as legal for use in commerce**
- (2) Has been published in the “Federal Register”; and**
- (3) Has metrological traceability *(NOTE #, page #)* to a national standard**

**Note: Sale of a product or commodity according to count, where appropriate to be fully informative to facilitate value comparison, is permissible as a method of sale.**

**(b). Only the following commodities may be exempted from the method of sale limitations set forth in Section 1. (a) and permitted to be sold according to “head” or “bunch,” as appropriate:**

- (1) Asparagus;**
- (2) Brussels Sprouts (on stalk);**
- (3) Rhubarb;**
- (4) Edible Bulbs (onions [spring or green], garlic, leeks, etc.);**
- (5) Flower Vegetables (broccoli, cauliflower, brussel sprouts, etc.);**
- (6) Leaf Vegetables (lettuce, cabbage, celery, parsley, herbs, loose greens, etc.); and**
- (7) Root Vegetables (turnips, carrots, radishes, etc.);**

**(Added 20XX)**

And

**Section 2. Non-food Products** [NOTE 1, page 109]

**(a). Any non-food product, whether sold from bulk or in packaged form, shall be sold only in a unit of measure or weight that meets all of the following criteria:**

- (1) Is recognized and defined by NIST as legal for use in commerce**
- (2) Has been published in the “Federal Register” and**
- (3) Has metrological traceability *(NOTE #, page #)* to a national standard**

**Note: Sale of a product or commodity according to count, where appropriate to be fully informative to facilitate value comparison, is permissible as a method of sale.**

**(b). The only exemption from the method of sale limitations set forth in Section 2(a) shall be retail sales of compressed natural gas sold as a vehicle fuel, which are permitted to be sold in terms of gasoline liter equivalent (GLE) or gasoline gallon equivalent (GGE) as defined in Section 2.27.1. Definitions**



**Note: As defined in NIST Handbook 130, Uniform Weights and Measures Law, Metrological traceability means the property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty.**

**(Added 20XX)**

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

Kurt Floren  
 County of Los Angeles Department of Agriculture Commissioner/Weights and Measures  
 626-575-5451  
 kfloren@acwm.lacounty.gov

**Background/Discussion:**

Much discussion and debate has been undertaken within the NCWM over the past two years regarding proposals for methods of sale of commodities (specifically, liquefied natural gas and compressed natural gas as vehicle fuels) based upon “equivalencies” to other methods of sale for different commodities (in these recent cases, based upon calculated average energy content comparisons to gasoline or diesel fuel). With the exception of a singular commodity, compressed natural gas, for which gasoline-liter-equivalent and gasoline-gallon-equivalent methods of sale were permitted some 20 years ago, the methods of sale for all other commodities have historically and consistently been established based upon legally-recognized units of weight or measure that are traceable to national standards maintained by NIST, the sole exceptions (found in interpretations and guidelines) being specific fresh vegetable commodities permitted to be sold by “head” or “bunch.” Discussions surrounding considerations of “equivalency” units have raised the potential for untold similar proposals to establish methods of sale for countless competing products in the marketplace claiming comparisons of performance, quality, energy or nutritional content, or other factors that can be subjective, widely varying due to inconsistent chemical or biological makeup, or a host of other influences that are, or may be, based upon little to no scientific or metrologically sound and traceable determinations or calculations.

While a core tenet of weights and measures regulation and legal metrology – whether regarding design and function of weighing and measuring devices or sales of commodities - has always been widely recognized to require employment of units of measure that are recognized and published as legal for use and having metrological traceability, clear language in model laws and regulations developed by NCWM and published in NIST Handbooks is absent, likely never heretofore being deemed necessary due to the well-established, long-held tenet. This proposal serves to codify, memorialize, and specifically clarify that tenet as a formal adoption in the Uniform Regulation for the Method of Sale of Commodities to ensure against potentially misleading, confusing, or unclear business practices in commerce, whether in sales from bulk or in labeling of packaged commodities, that may be based upon observations, calculations, assumptions, or other considerations that may be subjective and not metrologically traceable.

At the 2016 NCWM Interim Meeting Kurt Floren (LA County) remarked that this would codify a long standing practice. This is not intended to interfere with the current debate on liquefied natural gas (LNG). Mr. Floren encouraged the item on LNG to have a vote prior to this item. If the LNG proposal is adopted, item could be amended from the floor of the conference. A former regulator remarked that Uniform Weights and Measures Law, Section (n) allows the term or unit of weight or measure be used if it is determined that an existing or firmly established practice. This proposal conflicts with Weights and Measures Law Section 12(n) that states this is a state function, not NIST controlled. The term on “traceability” is in NIST Handbook 130, Uniform Weights and Measures Law. NIST remarked that when changes are made to SP 811, “*The NIST Guide for use of International System of Units*” or NIST SP 330, “*The International System of Units (SI)*” it is required that a Federal Register notice be announced.

The Committee is unclear as to what issue this proposal resolves. The Committee would also like to know what impact this would have for all items covered under the current Method of Sale of Commodities Regulation. The Committee agreed to move this forward as a Developing Item to allow the submitter to develop additional data and

to have the Regions submit feedback. At the 2016 NCWM Annual Meeting has no updates for the Committee but did state that this is a common sense practice in determining the method of sale of commodities.

**Regional Association Comments:**

At the 2015 WWMA Annual Meeting Mr. Kurt Floren, (L.A. County) advised that the proposal is intended to place into the model regulations a legally recognized, traceable unit of measure and such specific language does not appear in current NIST Handbooks even though it has been a longstanding requirement. An industry representative said to use caution in moving forward with this item, there may be some unintended consequences; specifically, non-food items such as a toaster. Mr. Floren responded, pointing out that sales by count, where appropriate, are specifically permitted in the proposal. Three regulators supported the concept and idea. One regulator expressed concern because of the LNG debate is ongoing. A regulator stated that any product can petition for exemption. During the voting session, an industry member commented that in the report, the last paragraph under the “Background/Discussion” was confusing and suggested that it should be deleted or revised. WWMA forwarded this item to NCWM, recommending that it be a Voting Item.

At the 2015 CWMA Interim Meeting an industry representative remarked that the WWMA modified the original version, omitting the last paragraph. He suggested the CWMA consider the same version as the WWMA. He also commented he had concerns of unintended consequences for products that do not currently have a net content requirement. A state regulator expressed a similar sentiment, and felt that the proposal needs to be further developed and clarified, as to what is included and what is not included. Other state regulators agreed there needed to be clear and distinct parameters, and one state commented that measure by count is already established. The Committee considered the timely nature of this issue and determined that there were no major concerns that would preclude it from being ready for voting status by July, 2016. The CWMA forwarded the item to NCWM, recommending it be a Voting Item.

At the 2015 NEWMA Interim Meeting a state regulator questioned the meaning of the term “bunch.” A consultant and former regulator indicated this item serves no purpose, and should be sent back to the originator for further development. He also indicated that the term “bunch” has been used for a long time, and if the consumer is comfortable with purchasing in this unit, it should be permitted. Another regulator was not sure what this agenda item clarifies and would like to have additional information. Another state regulator indicated he agreed with other state regulators that he saw no real purpose for this item. Since there is no clear direction for this item, the region felt the item needs further clarification and development by both the regulatory community, as well as industry. NEWMA forwarded the item to NCWM, recommending that it be a Developing Item.

At the 2015 SWMA Annual Meeting it was recommended that all sections within the proposed CNG/LNG items be reviewed to determine if additional exemptions are required to avoid language conflicts with this proposed language. SWMA forwarded the item to NCWM and recommended that it be an Informational Item.

At the 2016 NEWMA Annual Meeting, a retired weights and measures Director expressed several concerns with this proposal. He remarked that over 80 % of items in commerce do not have a method of sale because buyers and sellers have agreed upon the terms of sale. The only time commodities are included in the regulations are due to a dispute between the buyer and seller. NEWMA believes that this proposal could have a negative impact on commerce and recommends that it be Withdrawn.

**CWMA 2016 Report:**

<b>Item 2302-1</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
A regulator from Missouri commented that he believes the genesis of this item is to prevent the development of further units of sale that are not NIST traceable. A state regulator from Wisconsin commented that this provision takes the unit of sale for produce and puts it into Handbook 130. An industry official from Procter and Gamble has concern that this provision could inadvertently put the weights and measures community into a difficult position in the future, even though he philosophically agrees with the concept. A state regulator from Illinois commented that he believes this is a reasonable approach to undergird the scientific principles of weighing and measuring. A state regulator from Minnesota wonders if this item will serve the purpose for which it is intended. She has concerns it will put weights and measures into a position where we will be locked into a scenario where we cannot respond in a

nimble fashion. A regulator from Missouri commented that while it is unfortunate this item is necessary, he believes it should be moved forward as a voting item. Another state regulator from Missouri commented that the item is necessary, and he supports it moving forward as a voting item.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b> <input checked="" type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b> The committee believes this item is fully developed and ready for voting status.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>
<b>Regional recommendation to NCWM for item status:</b> <input checked="" type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> ) <input type="checkbox"/> Unable to consider at this time ( <i>Provide explanation in the "Additional Comments" section below</i> )
<b>Regional Report to NCWM:</b> An industry official has concern that this provision could inadvertently put the weights and measures community into a difficult position in the future, even though he philosophically agrees with the concept. A state regulator commented that he believes this is a reasonable approach to undergird the scientific principles of weighing and measuring. Another regulator wonders if this item will serve the purpose for which it is intended. She has concerns it will put weights and measures into a position where we will be locked into a scenario where we cannot respond in a nimble fashion. Another regulator commented that while it is unfortunate this item is necessary, he believes it should be moved forward as a voting item.

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

## 2302-2            1.12. Ready-to-Eat Food.

### Source:

Meat, Poultry, Fish, and Seafood TG (2016)

### Purpose:

Provide clarification in the definition and method of sale for these products.

### Item under Consideration:

Amend the NIST Handbook 130, Method of Sale Regulation as follows:

#### 1.12. Ready-to-Eat Food.

**1.12.1. Definition - Ready-to-Eat Food.** –Restaurant **style type** food offered or exposed for sale, whether in restaurants, supermarkets, or similar food service establishments, that is ready for **immediate human consumption**, though not necessarily on the premises where sold, **and which does not require any**

**cooking or heating preparation by the customer.** Ready-to-Eat Food does not include sliced luncheon products, such as meat, poultry, or cheese when sold separately.

**Some examples of Ready-to-Eat food items (The list is not intended to be all inclusive):**

- **Servings of pastas, potato or coleslaw**
- **Servings of salads, vegetables, or grains such as rice**
- **Pizzas, whole or sliced**
- **Meat/vegetable pockets/pies**
- **Tacos, fajitas, enchiladas, tostadas**
- **Cooked, whole chickens or turkeys**
- **Buckets, tubs, or individual pieces of cooked chicken or fish**
- **Cooked ribs by the slab or piece**
- **Stuffed clams, oysters, shrimp, and fish**
- **Cooked shrimp or crab cakes**
- **Slices of cake, pie, and quiche**
- **Donuts, bagels, and rolls for individual sale**
- **Cookies and brownies for individual sale**
- **Sandwiches, egg, and spring roll**
- **Servings of prepared chili or soup**
- **Stuffed peppers, tomatoes, and cabbage**
- **Knishes**
- **Pickles**

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

(Added 2004) **(Amended 20XX)**

**1.12.2. Methods of Sale. –Ready-to-Eat Food sold from retail cases displaying product in bulk or in single servings packed or prepared on the premises may be sold by weight, measure, or count (i.e., by piece, portion, or serving) (count includes servings). If pre-packaged, the product shall have the appropriate statement of quantity set forth in the current edition of NIST Handbook 130, Uniform Packaging and Labeling Regulation [UPLR].)**

(Amended 1993 **and 20XX)**

#### **Background/Discussion:**

The current definition and method of sale is broad and subject to individual (both inspector and establishments) interpretation as to what is considered ready-to-eat. The state of Michigan submitted a proposal at their 2015 CWMA Interim Meeting.

#### **1.12. Ready-to-Eat Food.**

**1.12.1. Definition - Ready-to-Eat Food.** – Restaurant style food offered or exposed for sale, whether in restaurants, supermarkets, or similar food service establishments, that is ready for consumption, **and will not require additional cooking preparation by the customer. Consumption may not necessarily be on the premises where sold. though not necessarily on the premises where sold.** Ready-to-Eat Food does not include **bulk deli food or** sliced luncheon products, such as meat, poultry, or cheese when sold separately.

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

(Added 2004) (Amended 20XX)

**1.12.2. Methods of Sale.** – Ready-to-Eat Food ~~sold from bulk or in single servings packed on the premises may be sold by weight, measure, or count (count includes servings).~~ shall be sold from bulk or in single serving packages. Bulk ready-to-eat foods may be sold by random weight or count which includes serving size. Pre-packaged single serving or multi-serving packages shall display a net weight statement representative of the contents, a unit price and a total cost.

(Amended 1993 and 201X)

At the 2016 NCWM Interim Meeting the NIST Technical Advisor remarked that the MPFS TG is tasked with reviewing the Method of Sale, Ready to Eat Food requirements. This task group consist of State Directors, inspectors and grocery store chains. The state of Michigan agreed this proposal should come from the MPFS TG. A MPFS TG members asked that since this has been addressed by the conference in the past, that past background information be placed into the report

The following excerpts are from the 1991 and 1992 NCWM Conference reports.

The Committee is aware that consumer buying habits and food marketing practices are constantly changing. Retail food stores compete with restaurants and fast food outlets in the prepared, ready-to-eat market. The traditional methods of sale required in retail grocery stores for ready-to-eat food items put grocers at a substantial competitive disadvantage compared to restaurants and fast food outlets that sell the same or similar items. An industry representative testified that consumers want to purchase these foods in supermarkets, but find it difficult to relate the cost per pound of a ready-to-eat item in the supermarket to the common method of sale used in a restaurant or fast food establishment (for example, "by each".) The industry indicated that allowing supermarkets to offer ready-to-eat food for sale by the piece would enhance value comparison by consumers. When purchasing ready-to-eat items in the supermarket, most consumers do not compare the price per pound, for instance, to the unprepared product, but rather take the total cost of the meal into consideration. Consumers then compare that price not only to other products in the grocery store, but to the same prepared items they might buy were they dining at a restaurant or purchasing a meal at a fast food establishment. The following list is presented to illustrate a few of the menu item foods that would be included under the definition of ready-to-eat foods. The list is not intended to be all inclusive. Some examples of Ready-to-Eat food items:

- Servings of pastas
- Cooked, whole chickens or turkeys
- Bar-b-qued ribs by the slab or piece
- Stuffed clams, oysters, shrimp, and fish
- Slices of cake, pie, and quiche
- Sandwiches, egg, and spring roll
- Buckets or tubs of chicken or fish
- Servings of chili or soup
- Servings of salads, vegetables, or grains such as rice
- Meat/vegetable pockets/ pies
- Tacos, fajitas, enchiladas, tostadas
- Stuffed peppers, tomatoes, and cabbage
- Knishes
- Pickles
- Pizzas, whole or sliced
- Cookies and brownies

The Committee heard comments during the Interim Meeting that restaurants sell such items by the piece or in small, medium, or large size portions, whereas supermarkets are required to sell them by weight or measure. Representatives from the food industry indicated that supermarkets are not inclined to sell by the piece any ready-to-eat food items that have traditionally been carried in their delis and sold by weight (such as sliced cold cuts or cheese, and prepared salads). Consumers are familiar and comfortable with the pricing and method of sale of these items, and grocers are reluctant to change the system. According to the Food Marketing Institute (FMI), which represents grocery retailers nationally, the supermarket business is highly competitive. Grocers depend on return business, and therefore most grocers would not risk "shorting" consumers by selling them inconsistent portions when offering ready-to-eat items by the piece. Rather, they would work to employ strict practices and controls to ensure uniform servings. FMI contacted their members from throughout the United States, grocery retailers large and small, regarding the sale of ready-to-eat food. Each agreed that the concerns raised initially by supermarkets in the northeastern part of the country are valid across the country. Retailers told FMI that their consumers would prefer to see ready-to-eat food items priced by the piece so they can easily determine the product's value.

In its deliberations to develop a definition for ready-to-eat foods, the Committee agreed that attempting to limit the definition to only items "prepared on the premises" was unreasonable because it would be impossible to enforce, especially if the term "prepared" is not defined. The Committee took the position that how the products are advertised and sold is the issue to be addressed, not where products are "prepared" or what constitutes "preparation." The Committee recognized that many items sold in restaurants, fast food outlets, and supermarkets are prepared in central kitchens and then distributed to the various retail outlets, and that this is the trend for the future. The Committee also decided that attempting to develop an all-inclusive list of products that could be sold as ready-to-eat food would be difficult because of the wide scope of products; in addition, it would be difficult to keep such a list current.

The NCWM first addressed the issue of ready-to-eat food at the 43rd NCWM in 1958. At that time, the terms "carry out meal" and "menu items" were used to provide illustrations of what the Committee intended to exempt from any specific method of sale. These broad terms allowed the individual jurisdiction to establish, according to its marketplace needs, policies or individual regulations to address which products had to be sold by weight, measure, or count. The key to applying the proposed requirement is to focus on how a product is advertised. For example, if a product is advertised in the same way as a food item is on a restaurant or fast food outlet menu, it could be sold by weight, measure, or count.

The Committee considered the importance of this issue, which is of national significance, and believes that action by the NCWM is needed to provide the States and industry with uniform guidance. The Committee proposed to amend Section 1.12. Ready-to-Eat Food to permit the sale of any ready-to-food by weight, measure, or count (count includes serving sizes such as small, medium, or large) if the food is sold from bulk and is ready for consumption. The proposed definition for "Ready-To-Eat Food" is comparable to the definition for restaurant foods used by the Federal Food and Drug Administration regulations that implement the Nutrition Labeling and Education Act of 1990. At the Annual Meeting, the Committee heard comments that the proposal was not supported by the Central and Northeastern Weights and Measures Associations and several members of industry. Therefore, the item was carried forward as an informational item to allow for additional review and development of alternative proposals.

During 2016 NCWM Interim, Mr. Kurt Floren (LA County) recommended that consideration be given to the language in Section 1.12. "Ready to Eat Food" in removing the term serving size and have items sold by weight or count. The Committee would like to have the MPFS TG continue to develop this item and recommends this be an Informational Item.

At the 2016 NCWM Annual Meeting the Committee stated that the MPFS Task Group submitted language for consideration to the Committee on March 23, 2016. The L&R Committee accepted this language and looks forward to receiving feedback from the Fall Regional Meetings.

**Regional Association Comments:**

At the 2015 CWMA Interim Meeting a state regulator spoke that this proposal merits further consideration, but does not include such items as rotisserie chicken, pizza, meat and cheese trays. She would like to see this proposal include these items. There is confusion on the definition of “single serving.” CWMA forwarded this item to NCWM, recommending that it be a Developing Item for further vetting by the states and regions.

At the 2015 NEWMA Interim Meeting, a state regulator commented that the language is confusing. Another regulator remarked it is unnecessary and redundant with other sections of NIST Handbook 130. NEWMA did not forward this item to NCWM.

At the 2016 NEWMA Annual Meeting, the Chair commented that recommended language for this proposal was received from the MPFS TG. The NIST Technical Advisor remarked that this group consisted of many weights and measures officials, inspectors, and grocery store chains. The concerns regarding “what is a serving size?” was also defined with assistance from FDA. The FDA is tasked by Congress to develop nutritional guidelines on food in the marketplace. Included with the nutritional guidelines is serving size. NEWMA feels that this new language is fully developed and recommends it move forward as a Voting Item.

At the 2016 CWMA Annual Meeting, the NIST Technical Advisor commented that the MPFS Task Group submitted new language to the National L&R Committee, which is available on the NCWM website. All were encouraged to review the revised this language and provide feedback at the Annual NCWM in July. The CWMA is recommending this be an Informational Item.

**CWMA 2016 Report:**

<b>Item 2302-2</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
An industry representative commented that this issue was generated – at least in part – to address the sale of rotisserie chickens. A state regulator from Minnesota asked about items such as pizza sold that are sold both cooked and ready-to-cook, and whether there would be an issue with selling the same item as two different methods of sale. A state regulator from Wisconsin said her state is already doing this. A state regulator from Iowa commented that he wondered if ready-to-eat party platters and items that are cold but would likely be taken home would fall under this provision. A state regulator from Kansas commented that he has always struggled with the sale of hot food in grocery stores being sold one way, and the same item sold in a case differently. A Nebraska regulator commented that the purpose is to provide the consumer with information on the sale of a particular item at a particular time. A state regulator from Iowa commented that a consumer needs to know what they’re buying. For example, when a store offers a “pick five items” sale, there is no consideration of weight, so a price comparison does not exist. He believes all items should have a weight for purposes of comparison. A state regulator from Missouri commented that a ready-to-eat product that provides a weight may not provide any useful information to a consumer. A South Dakota regulator commented that grocery chains started doing food prep to allow grocers to sell products that otherwise would have been thrown away. They need to remember that it is a separate entity from typical grocery store items. She also commented that ready-to-eat food is regulated by the FDA or USDA from a food safety standpoint, and weights and measures should not be regulating those items. A state regulator from Minnesota commented that consumers care about more than price per pound. Consumers also care about portion size. She commented she believes that all ready-to-eat packaged foods should be sold by weight. An Iowa state regulator agrees. The state regulator from Illinois commented he had concerns about having all ready-to-eat foods be sold by weight.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> )

<input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>
This issue is vague, and there was uncertainty among committee members as to how it would be implemented. They felt this would be subjective and would lead to inconsistencies.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (<i>If different than regional committee recommendation</i>)</b>
<b>Regional recommendation to NCWM for item status:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> ) <input type="checkbox"/> Unable to consider at this time ( <i>Provide explanation in the "Additional Comments" section below</i> )
<b>Regional Report to NCWM:</b>
<p>An industry representative commented that this issue was generated – at least in part – to address the sale of rotisserie chickens. A state regulator asked about items such as pizza that is sold both cooked and ready-to-cook, and whether there would be an issue with selling the same item with two different methods of sale. One state regulator said her state is already doing this. Another state regulator commented that he wondered if ready-to-eat party platters and items that are cold but would likely be taken home would fall under this provision. A regulator commented that the purpose of this item is to provide the consumer with information on the sale of a particular item at a particular time. A state regulator responded that consumers need to know what they are buying. For example, when a store offers a “pick five items” sale, there is no consideration of weight, so a price comparison does not exist. He believes all items should have a weight for purposes of comparison. A regulator commented that a ready-to-eat product that provides a weight may not provide any useful information to a consumer. Another regulator commented that grocery chains developed delis to allow grocers to sell products that otherwise would have been thrown away. Grocers need to remember that ready-to-eat items are a separate entity from typical grocery store items. She also commented that ready-to-eat food is regulated by the FDA and/or USDA from a food safety standpoint, and weights and measures may not need to regulate these items. A state regulator commented that consumers care about more than price per pound; consumers also care about portion size. She commented that all ready-to-eat packaged foods should be sold by weight; another regulator agrees. A regulator commented he had concerns about having all ready-to-eat foods be sold by weight. This issue has many gray areas, and there was uncertainty among committee members as to how it would be implemented. They felt this would be subjective and would lead to inconsistencies.</p>

Additional letters, presentations and data may have been part of the committee’s consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

**New-7 1.12. Ready-to-Eat Food.**

**Source:**  
New Hampshire (2017)

**Purpose:**  
Allow businesses the ability to offer restaurant type food to the consumer in a manner similar to restaurant counterparts.

**Item under Consideration:**  
Amend NIST Handbook 130, Uniform Method of Sale Regulation as follows:

**1.12. Ready-to-Eat Food Restaurant Type Food and Service.**



~~1.12.1. Definition. Restaurant style food offered or exposed for sale, whether in restaurants, supermarkets, or similar food service establishments, that is ready for consumption, though not necessarily on the premises where sold. Ready-to-Eat Food does not include sliced luncheon products, such as meat, poultry, or cheese when sold separately. Food offered for sale in a manner similar to a restaurant, including advertising, service, and sale, which is ready for immediate human consumption, and is generally eaten on the premises. This type of food does not require any cooking or heating preparation by the customer.~~

1.12.2. Intent. The purpose of this regulation is to allow businesses the ability to offer restaurant type food to the consumer in a manner similar to restaurant counterparts.

~~1.12.23. Method of Sale. Ready-to-Eat Food sold from bulk or in single servings packed on the premises may be sold by weight, measure, or count (count includes servings). Restaurant Type Food and Service is allowed in restaurants, grocery stores and similar food service establishments, or vendor type markets, such as fairs and farmers markets. Food is offered in a manner similar to restaurants when a customer orders and is served in a direct sale over a counter or in a similar manner.~~

**Note 1: Pre-Packaged products shall have the appropriate statement of quantity set forth in the current edition of NIST Handbook 130, Uniform Packaging and Labeling Regulation.**

**Note 2: This regulation does not prohibit restaurant type food from being sold by weight, measure, or count in accordance with NIST Handbook 130, Uniform Packaging and Labeling Regulation.**

**Background/Discussion:**

The submitter provided the following comments:

The act of providing food in a similar manner as restaurants should be the most important distinguishing factor to what is currently referred to as “Ready-To-Eat.” If grocery stores want to compete with restaurants, the method of advertising, service, and sale should be similar to restaurants.

Our intention is to create clarity to the proposed “Ready-To-Eat” regulation and not to eliminate current long standing practices that have been adopted as reasonable, such as cooked wrapped chickens, donuts/muffins in a display case, etc. These types of items can be addressed at a jurisdictional level, or in the creation of specific methods-of-sale. New Hampshire does not support the L&R 232-3 proposal as it will likely lead to possible unintended consequences by changing the method-of-sale for numerous items, and is too confusing for regulators and businesses. The New Hampshire proposal is clear, concise, reasonable, and understandable.

**Re: Title**

“Ready-To-Eat” is an ambiguous and confusing title, as many things are ready-to-eat but are not intended to fall under this regulation. Why not call it what it is? If the intent is to compete with restaurants, then the title should align with that intent. **“Restaurant Type Food and Service”** embodies the intent of this regulation.

**Re: List of examples**

Why a “whole” turkey, but only a “slice” of quiche? Why a “serving” of vegetables, but a “bucket” of chicken. These qualifiers are unenforceable. Why can you buy eight single slices of pie, but not a whole pie? What if a vegetarian wants more than one serving to create a meal? What reasons do inspectors give to businesses when trying to explain this? All food items can theoretically be included in “ready-to-eat” when prepared and sold properly.

We do not feel it is appropriate to create an example list of allowed foods in the regulation. The list will be difficult to maintain because businesses will request the addition of food items. Enforcement may be hindered because of issues with interpretation. The list leads to more confusion rather than clarity. For these reasons, the list should be eliminated.

See language from the 1992 Annual Conference Ready-To-Eat Committee: *“The Committee also decided that attempting to develop an all-inclusive list of products that could be sold as ready-to-eat food would be difficult because of the wide scope of products; in addition, it would be difficult to keep such a list current.”*

**Re: Packed and prepared on premise**

This is not equitable for smaller businesses, food stands, farmers markets, etc. where the food is prepared offsite. The location where the food items are prepared should not be a weights and measures issue. This requirement will be time consuming and difficult to enforce, with no benefit to the consumer.

See language from the 1992 Annual Conference Ready-To-Eat Committee: *“...the committee agreed that attempting to limit the definition to only items “prepared on the premises” was unreasonable because it would be impossible to enforce, especially if the term “prepared” is not defined...The Committee recognized that many items sold in restaurants, fast food outlets, and supermarkets are prepared in central kitchens and then distributed to the various retail outlets...”*

**Re: Portion Size**

The distinction between portion sizes, slices, whole, etc. is not important to whether food should qualify as “restaurant type food.” Once an item is allowed to be sold by a single serving or slice, it is unenforceable to prevent people from buying multiple servings or slices. It is not reasonable for businesses or inspectors to research or enforce what a single serving is for each food item.

**Re: Single Serve**

If there is a strong need for single serve items, then there should be a separate regulation to cover this.

**Re: Older version language**

*“...food for **direct** (i.e. seller and consumer are present when the quantity is determined) sale...”*

This was taken out of the proposed language...why? This is the intent and should be included in the regulation. Businesses should compete in a similar manner as restaurants.

**Re: Restaurants selling packaged food**

If restaurants want to compete with grocery stores by selling pre-packed foods, then the packages need to follow NIST HB 130.

Clearly, regardless of what language is adopted, there is going to be some “gray area” and inspector/jurisdictional discretion will be necessary. However, the New Hampshire proposal is clear, concise, reasonable, and understandable.

**CWMA 2016 Report:**

<b>Item New-7</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
A state regulator from Kansas commented that this new item addresses the concerns about ready-to-eat as opposed to pre-packaged food. Several regulators commented that this new item addresses the concerns in the previous item. A state regulator from Wisconsin supports this new item.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>
The committee feels there is merit to both proposals for this item and suggests that the submitters work together to further develop this issue.

<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: <i>(If different than regional committee recommendation)</i></b>
<b>Regional recommendation to NCWM for item status:</b> <input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda <i>(In the case of new items, do not forward to NCWM)</i> <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda <i>(To be developed by source)</i> <input type="checkbox"/> Unable to consider at this time <i>(Provide explanation in the "Additional Comments" section below)</i>
<b>Regional Report to NCWM:</b> The committee feels there is merit to both proposals for this item and suggests that the submitters work together to further develop it for future consideration.

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

### **New-5**      **1.7.3. Bulk Ice Cream and Similar Frozen Products**

**Source:**

Florida (2017)

**Purpose:**

Update the advertising and price computing for bulk frozen milk products to include the current and commonly used practice of computing by weight in ounces.

**Item under Consideration:**

Amend the NIST Handbook 130, Method of Sale Regulation as follows:

**1.7.3. Bulk Ice Cream and Similar Frozen Products.** - Ice cream, ice milk, frozen yogurt, and similar products when sold from bulk by weight shall be advertised, displayed and sold in terms of whole weight units of ounces.

(Added 1976) (Amended 1985, 1987, and 1991) (Amended 2017)

**Background/Discussion:**

The bulk ice cream and frozen yogurt market has been operating with prices displayed in ounces (wt.) without issue for many years. This unit has become commonly accepted throughout this industry and is more representative of actual purchase weights compared to pounds (i.e. not many people are purchasing multiple pounds of frozen yogurt in single serving applications). Handbook requirements to advertise the price by kilograms or pounds are not in line with consumer expectations that the advertised price will be in the same unit displayed during the sale. While this information is intended to allow the consumer to make a value comparison between locations the currently displayed weight in ounces allows for the same. We believe this change will allow businesses to continue a practice that has had no adverse impact on the consumer.

If the rules as they exist are enforced and primary and supplemental pricing are posted, so that businesses can continue to advertise this product in the historically accepted weight unit, pricing may become more difficult for average consumers to interpret and thus lead to confusion in the marketplace. Enforcement of current regulations may also be costly for businesses and not benefit the consumer.

**CWMA 2016 Report:**

<b>Item New-5</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
A state regulator from Kansas commented that this provision is a change to capture a comparative price by the ounce rather than also posting it as price per pound. He does not agree with the concept of selling ice cream by price per ounce. He does not think it provides useful enough information to the consumer. He does not support it. If this information is utilized it should be considered as supplemental language.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input checked="" type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>
All similar frozen products are not sold in the same units. This proposal needs clarity to determine what is and what is not covered.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>
<b>Regional recommendation to NCWM for item status:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input checked="" type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> ) <input type="checkbox"/> Unable to consider at this time ( <i>Provide explanation in the "Additional Comments" section below</i> )
<b>Regional Report to NCWM:</b>
All similar frozen products are not sold in the same units. This proposal needs clarity to determine what is and what is not covered.

Additional letters, presentations and data may have been part of the committee’s consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

**2302-3            2.17. Precious Metals**

**Source:**  
Florida (2016)

**Purpose:**  
Provide critical information consumers should have when deciding to sell items containing precious metals.

**Item under Consideration:**  
Amend the NIST Handbook 130, Method of Sale Regulation as follows:

**2.17. Precious Metals.**

**2.17.1. Definition.**

**2.17.1.1. Precious Metals.** –Gold, silver, platinum, or any item composed partly or completely of these metals or their alloys and in which the market value of the metal in the item is principally the gold, silver, or platinum component.

**2.17.2. Quantity.** – The unit of measure and the method of sale of precious metals, if the price is based in part or wholly on a weight determination, shall be either troy weight or SI units. ~~When the measurement or method is expressed in SI units of mass, a conversion chart to troy units shall be prominently displays so as to facilitate price comparison.~~ To facilitate price comparison and provide information allowing consumers to make an informed decision a chart must be prominently displayed and present in proximity to the purchasing scale being used for the transaction. This chart requirement is not intended to apply to pure precious metals traded on commodity markets such as stock exchanges and the like rather it is only intended to apply to precious metals purchased by second hand markets. The chart must be clearly visible to the seller and contain at a minimum the following information.

(a) A table of troy weights indicating grains, pennyweights, and troy ounces.

(b) The percentages as noted in Table 3 of precious metals contained in common mixtures found in the marketplace.

<u>Gold</u>	<u>10 karat</u>	<u>41.7 %</u>
	<u>14 karat</u>	<u>58.3 %</u>
	<u>18 karat</u>	<u>75.0 %</u>
	<u>24 karat</u>	<u>100 %</u>
<u>Silver</u>	<u>Sterling</u>	<u>92.5 %</u>
<u>Platinum</u>	<u>900 platinum</u>	<u>90 %</u>
	<u>950 platinum</u>	<u>95 %</u>

(c) If buying precious metals based on weight the chart shall also state the minimum percentage of the current melt value being used to calculate the buying price and the minimum melt value on which the buying price is based.

(d) If buying precious metals based on weight the following formula:

"(Item weight × Percentage in decimal form of precious metal contained in the item) × (Melt value being used × Percentage in decimal form being paid of melt value being used) = Potential Monetary Offer".

(e) When the measurement or method of sale is expressed in SI units of mass, a conversion chart to troy units must also be present on the chart.

(Added 1982) (Amended 20XX)

#### **Background/Discussion:**

The accurate and fair purchase of precious metals by retailers from the general public is dependent on two primary factors. The first factor being the accuracy of the scale, which is well covered in Section 2.20 of NIST Handbook 44. The second factor has not been addressed, but it involves the calculation or method used by buyers to make an offer to the seller (the general public). It is probably fair to say that the average consumer is unaware of how to calculate market value for their precious metal containing items (e.g. gold and silver jewelry, etc.) and thus, creates the potential for an inequitable or unformed transaction; despite an accurate scale. The weights and measures

community routinely refers to the quintessential (and justified) need for “equitable transactions” and if the general public elects to sell precious metals in a time of need or for whatever reason they should have sufficient information to ensure value comparison and be able to engage in an equitable transaction. We believe this additional information will further ensure equitable transactions occur in the precious metal buying market (from the general public).

Florida officials are aware of scenarios where consumers were paid as low as 10% of the melt value. Their suspicion is that they were unaware they were being paid such a low percentage of the melt value for their property. The officials believe it is difficult for consumers to discern whether they are being offered a fair price for their items and the proposed information will help make it less difficult. Second hand dealers and pawn shops may not be in favor of the additional declarations, but there is no additional cost or requirement to these businesses. Pursuant to existing language (since 1982) charts are already required.

At the 2016 NCWM Interim Meeting, Dr. Matt Curran (FL) provided background information as to why this proposal was submitted. He believes that providing consumers with this information is will help them when making a precious metals transaction. The Committee encourages the submitter to reach out to notify stakeholders of this change. The Committee believes this item has importance for marketplace transactions and recommends this move forward as a Voting Item.

At the 2016 NCWM Annual Meeting, Dr. Curran remarked that the intent of this proposal was to address second-hand and pawn shops. This requirement is not intended for precious metals traded on the commodity market. There was discussion from the regions regarding the marketplace and how precious metals are sold in their region. It was remarked that terminology needs to be defined for the terms “melted, salvage, and second hand market”. Ms. Julie Quinn (MN) commented that language needs to include the salvage pricing offering and the chart should include grams. The Item under Consideration that appeared in Publication was modified by Dr. Curran from the floor. This modified proposal was not adopted and returned to Committee.

**Regional Association Comments:**

At the 2015 SWMA Annual Meeting, Dr. Curran stated that this language will give the consumer information that is needed to make a value comparison. A state official was concerned about the size of the chart however; it was explained that the information could be included on the weight conversion chart that is already required. Another state official expressed concern that enforcement of this requirement might not be within the prevue of W&M Officials. The SWMA believes this item has merit and would like get feedback from the other regions. SWMA forwarded the item to NCWM recommending that it be an Informational Item.

At the 2016 NEWMA Annual Meeting, a Maine W&M official commented that they support this item and believes there is a significant need for this new language. A retired weights and measures official commented he had concerns with vagueness in Table 3 – conversion factors need to be stated and clarified. A state official commented that this chart is already adopted in Handbook 44. Another state official asked for clarity regarding the term “melt value”. Another state official asked if this new language would impact the precious metals commodity market. A retired individual commented that Section 2.17.2 clarifies that this provision is dealing with recycled scrap gold. He suggests that a paragraph be added that clarifies metals in pure form would be exempt from this provision. NEWMA supports this as a Voting Item with the recommendation that the submitter of the proposal add language clarifying a precious metals exemption in a non-retail environment.

At the 2016 CWMA Annual Meeting, a NIST Technical Advisor commented that the submitter was asked by the National L&R Committee to seek stakeholder input. CWMA were also encouraged to review the proposal with stakeholders and provide additional input. However, the Committee feels the item is fully developed and ready for voting status unless subsequent concerns arise.

**CWMA 2016 Report:**

<b>Item 2302-3</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
A state regulator from Minnesota proposed that the seller post the price they are actually paying for the weight of the gold or precious metal being considered. The written receipt should contain weight and the percent of precious metal times price offered which will equal the price given by the buyer. This would avoid the need for charts. A regulator

from Iowa agrees this should be simplified. A state regulator commented that grams and/or troy ounces should continue to be the required unit of sale.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<p><b>Committee recommendation to the region:</b></p> <p><input type="checkbox"/> Voting Item on the NCWM Agenda</p> <p><input checked="" type="checkbox"/> Information Item on the NCWM Agenda</p> <p><input type="checkbox"/> Withdraw the Item from the NCWM Agenda (<i>In the case of new items, do not forward to NCWM</i>)</p> <p><input type="checkbox"/> Developing Item on the NCWM Agenda (<i>To be developed by source</i>)</p>
<b>Reasons for the committee recommendation:</b>
The committee feels the original proposal is too complicated and will not improve equity in the marketplace and offers substitute language for this proposal. The alternative proposal is more concise, easy to understand and it clearly states the seller's requirements.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>
<b>2.17. Precious Metals</b>
<p><b>2.17.1. Definition.</b></p> <p><b>2.17.1.1. Precious Metals. – Gold, silver, platinum, <u>palladium</u> or any item composed partly or completely of these metals or their alloys and in which the market value of the metal in the item is principally the gold, silver, platinum or <u>palladium</u> component.</b></p> <p><b>2.17.2. Quantity – <u>When the price offered for items containing precious metals is based in part or wholly on the weight of precious metals they contain, the price per unit for the precious metal content must be in troy ounces. The receipt or recorded documentation of the transaction should contain the gross weight and the percent of precious metal multiplied by the price offered which will equal the price given by the buyer.</u></b></p>
<b>Regional Report to NCWM:</b>
The committee feels the original proposal is too complicated and will not improve equity in the marketplace and offers substitute language for this proposal. The alternative proposal is more concise, easy to understand and it clearly states the seller's requirements.

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

**New-2**                    **2.20. Gasoline – Oxygenate Blends and 2.30. Ethanol Flex-Fuel** (See related New Item 3)

**Source:**  
KMoore Consulting, LLC (2017)

**Purpose:**  
Align the duplicative labeling wording for Gasoline- Oxygenate Blends and Ethanol Flex Fuel blends that appears in Section B: Uniform Regulation for the Method of Sale of Commodities with the proposed Section G. Ethanol labeling being proposed by the Handbook 130 Focus Group.

**Item under Consideration:**

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

**2.20. Gasoline-Oxygenate Blends.**

~~2.20.1 Gasoline- Oxygenate Blends with an ethanol concentration no less than 51 and no greater than 83 volume percent shall be labeled “Ethanol Flex Fuel, minimum 51 % ethanol.” shall be identified and labeled in accordance with the Federal Trade Commission Automotive Fuel Ratings, Certification and Posting Rule, 16 CFR 306, as amended. (Amended 20XX)~~

~~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 a type at least 12.7 mm (1/2 in) in height, 1.5 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:~~

- ~~1.—(a) Information that complies with 40 CFR § 80.1503 when the fuel contains ethanol.~~
- ~~2.—(b) For fuels that do not contain ethanol, information that complies with 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.”~~
- ~~3.—(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)~~

**2.30. Ethanol Flex Fuel.**

~~2.30.1. How to Identify Ethanol Flex Fuel.— Ethanol flex shall be identified as “Ethanol Flex Fuel or EXX fuel~~

~~Flex Fuel.”~~

~~2.30.2. Labeling Requirements.~~



- ~~1. (a) Ethanol flex fuel with an ethanol concentration no less than 51 and no greater than 83 volume percent shall be labeled “Ethanol Flex Fuel, minimum 51 % ethanol.”~~

~~(Amended 2014)~~

- ~~2. (b) Ethanol flex fuel with an ethanol concentration less than or equal to 50 volume percent shall be labeled “EXX Flex Fuel, minimum YY % ethanol,” where the XX is the target ethanol concentration in volume percent and YY is XX minus five (– 5). The actual ethanol concentration of the fuel shall be XX volume percent plus or minus five (± 5) volume percent.~~

~~(Added 2014)~~

- ~~3. (c) A label shall be posted which states “For Use in Flexible Fuel Vehicles (FFV) Only.” This information shall be clearly and conspicuously posted on the upper 50 % of the dispenser front panel in a type at least 12.7 mm (1/2 in) in height, 1.5 in) stroke (width of type). A label shall be posted which states, “CHECK OWNERS MANUAL,” and shall not be less than 6 mm (1/4 in) in height by 0.8 in) stroke; block style letters and the color shall be in definite contrast to the background color to which it is applied.~~

~~(Amended 2014)~~

~~(Added 2007) (Amended 2014)~~

**Background/Discussion:**

The proposal to eliminate the duplicative wording that appears in Section B. Method of Sale for Commodities will streamline the Handbook contents, send users of the Handbook to only one section that provides appropriate guidance on labeling for both oxygenated fuels and ethanol flex fuels. Having duplicative wording is both confusing and redundant. There is no other fuel related guidance, for gasoline or diesel for that matter, that appears in Section B. All fuel related information appears in Section G. Uniform Engine Fuels and Automotive Lubricants section.

**CWMA 2016 Report:**

<b>Item New-2</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
An industry representative submitted written comments that indicate this provision should be referred to the Fuels and Lubricants Subcommittee for further development. A state regulator from Missouri commented that there is an informal working group that has been updating the Uniform Engine Fuels section of Handbook 130, and this new language may be a part of that process. A state regulator from Minnesota asked how this provision would impact E15. She commented that she has concern if this provision will require changing the face of the dispenser from season to season. An industry representative from API commented that on October 3 EPA released the Renewable Enhancement and Growth Support (REGS) proposed rule. E15 is considered gasoline, and is not allowed to be re-labeled as flex fuel during the summer months. He believes this item needs to continue to be developed through FALS as the federal rule moves through the process.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input checked="" type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )

<b>Reasons for the committee recommendation:</b>
FALS is working on these revisions and is hoping to have a draft available for review by the 2017 Interim meeting.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>
<b>Regional recommendation to NCWM for item status:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input checked="" type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> ) <input type="checkbox"/> Unable to consider at this time ( <i>Provide explanation in the "Additional Comments" section below</i> )
<b>Regional Report to NCWM:</b>
The submitter provided written comments that indicate this provision should be referred to the Fuels and Lubricants Subcommittee for further development. A regulator commented that there is an informal working group that has been updating the Uniform Engine Fuels section of Handbook 130, and this new language will be a part of that process. A regulator asked how this provision would impact E15. She commented that she has concern if this provision will require changing the face of the dispenser from season to season. An industry representative from API commented that on October 3, 2016 EPA released the Renewable Enhancement and Growth Support (REGS) proposed rule. E15 is considered gasoline, and is not allowed to be re-labeled as flex fuel during the summer months. He believes this item needs to continue to be developed through FALS as the federal rule moves through the process.

Additional letters, presentations and data may have been part of the committee’s consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

**2302-4            2.XX. Automatic Transmission Fluid. (See Related Item 2307-1)**

**Source:**

American Petroleum Institute (API) (2016)

**Purpose:**

Define how transmission fluids shall be identified in the marketplace on delivery documents and invoices and receipts from service.

**Item under Consideration:**

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

**2.XX. Transmission Fluid.**

**2.XX.1 Labeling and Identification of Transmission Fluid. – Transmission fluid shall be labeled or identified as described below.**

**2.XX.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 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 those set by original equipment manufacturers and standards-setting organizations such as SAE and are acknowledged by reference; and
- (e) an accurate statement of the quantity of the contents in terms of liquid measure.

**2.XX.1.2. Identification on Documentation – Transmission fluid sold in bulk shall be identified on the invoice, bill of lading, shipping paper, or other documentation with the information below:**

- (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 or reference to where these claims may be viewed (for example, website reference). Performance claims include those set by original equipment manufacturers and standards-setting organizations such as SAE and are acknowledged by reference; and
- (e) an accurate statement of the quantity of the contents in terms of liquid measure.

**2.XX.1.3. Identification on Service Provider Documentation – Transmission fluid installed from a bulk tank at time of transmission service shall be identified on the customer invoice with the information listed below:**

- (a) the brand name;
- (b) the name and place of business of the service provider;
- (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 or reference to where these claims may be viewed (for example, website reference). Performance claims include those set by original equipment manufacturers and standards-setting organizations such as SAE and are acknowledged by reference; and
- (e) an accurate statement of the quantity of the contents in terms of liquid measure.

**2.XX.1.4. Bulk Delivery – When the transmission fluid is sold in bulk, an invoice, bill of lading, shipping paper, or other documentation must accompany each delivery. This document must identify the fluid as defined in Section 2.XX.1.2.**

**2.XX.1.5. Storage Tank Labeling. – Each storage tank of transmission fluid shall be labeled with the following:**

**(a) the brand name;**

**(b) the primary performance claim or claims met by the fluid or reference to where these claims may be viewed. Performance claims include those set by original equipment manufacturers and standards-setting organizations such as SAE and are acknowledged by reference.**

**2.XX.2. Documentation of Claims Made Upon Product Label. – Any manufacturer, packer, or distributor of any product subject to this article and sold in this state shall provide, upon request of duly authorized representatives of the Director, documentation of any claim made upon their product label.**

**(Added 20XX)**

**Background/Discussion:**

Many original equipment manufacturers (OEMs) set their own transmission fluid standards and recommend that consumers use these fluids in their designated applications. However, the current version of Handbook 130 does not adequately define how transmission fluids shall be identified in the marketplace on delivery documents and invoices and receipts from service. Requiring more specific information on invoices and receipts will provide some assurance to consumers that recommended automatic transmission fluids are being installed in their cars and trucks.

The changes proposed are consistent with those approved for gasoline and diesel engine (motor) oils sold in packages or dispensed from bulk containers.

At the 2016 NCWM Interim Meeting, Dr. Curran (FALS Chairman) recommended that this and (related Item 237-4) be an Information Item, so that the language can be worked on. Several members supported additional work on this proposal. The Committee recommends this as an Informational Item.

At the 2016 NCWM Annual Meeting, Mr. Ferrick (API) submitted modified language to the Committee for consideration. The Committee moved forward the modified language and looks forward to receiving feedback from the Fall Regional Meetings.

**Regional Association Comments:**

At the 2015 WWMA Annual Meeting, Kevin Ferrick (API) remarked that there is a need to revise the way automatic transmission fluids (ATF) are identified in the marketplace on delivery documents, invoices and receipts from service. He stated that many original equipment manufacturers (OEMs) set their own transmission fluid standards and recommend that consumers use these fluids in their designated applications. In many cases, these standards are unique to the OEM's transmissions, and must be used to ensure proper operation. However, the current version of Handbook 130 does not adequately define how transmission fluids are identified in the marketplace on delivery documents, invoices and receipts. Requiring more specific information on invoices and receipts will provide some assurance to consumers that recommended automatic transmission fluids are being installed in their cars and trucks. Proper identification will also assist state weights and measures officials in determining performance claims for transmission fluids sold in bulk in their states. Additionally, the changes proposed are consistent with those approved for gasoline and diesel engine (motor) oils sold in packages or dispensed from bulk. A regulator expressed concerns for the term and definition of "performance claim for fluid" since it would be challenging to enforce. He requested additional clarification at the NCWM with a possible amendment to add that "performance claims" refers to additives, not ATF. WWMA forwarded the item to NCWM, recommending it as a Voting Item with the following recommended editorial changes to renumber sections:

- 2.XX.1. to 2.XX.1.1. Labeling
- 2.XX.2. to 2.XX.1.2. Documentation of Claims Made Upon Product Label
- Remove the word "packaged" from the proposed language: ("In addition, each ~~packaged~~ container shall be labeled with the following") Striking the word "packaged" is appropriate because a container is a package. Other sections in this regulation refer to a "container, receptacle, dispenser, storage tank." In no other place is a container described as a "packaged container."

At the 2015 CWMA Interim Meeting an American Petroleum Institute (API) representative remarked that Handbook 130 does not allow for proper identification of transmission fluids sold in states, and API supports adding new language for both, the Method of Sale and Engine Fuels and Automotive Lubricants Regulations. He indicated the term ‘receptacle’ might need to be changed in the proposal as well as performance claim language to performance specification instead. He explained that most engine manufacturers (OEMs) have their own transmission fluid standards, unlike motor oil. An industry representative from the Automotive Oil Change Association commented that one possibility could be a part number for transmission fluid labeling. Most OEMs will provide a preferred brand as well as at least one alternate option. Industry representatives recommended this proposal continue as a Developing Item. A state regulator commented this is an important proposal and should move forward, but should have time to be fully vetted. CWMA believes that industry will continue to work on collaboration and education with regard to this item and believes the item is sufficiently developed. CWMA forwarded the item to NCWM, recommending that it be a Voting Item.

At the 2015 NEWMA Interim Meeting a representative from the American Petroleum Institute (API) remarked that this item is intended to add some definition to transmission fluid so the consumer knows what they are getting, and it is properly labeled. A state regulator asked how the product is displayed or where it is stored at a retail oil change facility. He also asked if you have a service station with a permanent tank for transmission fluid, do they pour one type over another. The API representative said that different types of transmission fluids should not be commingled, but common ATF’s from different manufacturers can be commingled. Another state regulator asked for clarification on why item 3.14.(d), “duty type” was changed to “the performance claim or claims for the fluid?” Some who attended the CWMA Meeting commented that API made comments during that meeting in regards to the change, and API would provide further clarification at the 2016 NCWM Interim Meeting. NEWMA considered this item to be fully developed and forwarded it to NCWM, recommending it as a Voting Item.

At the 2015 SWMA Annual Meeting, Mr. Kevin Ferrick (API) stated that the proposed language has been shared with the WWMA, CWMA and NEWMA; API’s Lubricants Group; AOCA; and others. The WWMA raised some concerns about the term “performance claim” vs “duty cycle,” and agreed that there should be more suitable wording. API’s plan is to provide an amended version in time for the NCWM 2016 Interim Meeting. It was noted that NIST provided some formatting edits and API recommends that version be submitted for inclusion into Publication 15. Dr. Curran (FALS Chairman) stated that the FALS Committee would review the item and have comments for the 2016 NCWM Interim Meeting. The SWMA supported the item with the formatting changes recommended by NIST (also refer to Item 237-4) and more suitable language for the term “performance claim” which is expected to be addressed at the 2016 NCWM Interim Meeting. SWMA is recommended that this item be a Voting Item.

At the 2016 NEWMA and CWMA Annual Meetings, Mr. Ferrick remarked that he is working on language and will submit through FALS. NEWMA and CWMA are recommending this as an Informational Item.

**CWMA 2016 Report:**

<b>Item 2302-4</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
An industry representative from API commented that the language as it is currently proposed continues to move forward to gain industry consensus. He supports the item and recommends it move forward as a voting item. He further commented there may be a request for the additive supplier to provide support data.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input checked="" type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>
The submitter believes this proposal is fully developed. Any further edits would be to provide greater clarity to the proper identification of transmission fluid in the marketplace. The committee feels this item is ready for voting

status.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: <i>(If different than regional committee recommendation)</i></b>
<b>Regional recommendation to NCWM for item status:</b> <input checked="" type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda <i>(In the case of new items, do not forward to NCWM)</i> <input type="checkbox"/> Developing Item on the NCWM Agenda <i>(To be developed by source)</i> <input type="checkbox"/> Unable to consider at this time <i>(Provide explanation in the "Additional Comments" section below)</i>
<b>Regional Report to NCWM:</b> The submitter and the committee believe this proposal is fully developed. Any further edits would be to provide greater clarity to the proper identification of transmission fluid in the marketplace. The committee feels this item is ready for voting status.

Additional letters, presentations and data may have been part of the committee’s consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

**New-8**                      **2.XX. Agricultural Vending**

**Source:**  
Mississippi (2017)

**Purpose:**  
Provide a method of sale for agricultural feed, grain (corn, wheat, etc.) rock salt or protein pellets when dispensed by agricultural vending machines.

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

**2.XX. Agricultural Vending. Agricultural feed, grain (corn, wheat...), rock salt or protein pellets shall be offered or exposed for sale on the basis of net weight.**

**Background/Discussion:**  
Agricultural vending machines are new to the marketplace and this method of sale will allow the consumer to make value comparisons with various machines and locations when the method of sale allows for the same. Currently, there are two companies manufacturing agricultural vending machines and a possible third company coming into the marketplace. One of the existing companies is marketing the products by the gallon and the other by weight. Both of the manufacturers’ websites provide a listing of states where the machines are currently in operation. They also provide other information as to where you can expect to find these devices in the future. Information gathered from the websites includes locations in nine states and 43 devices current and pending. Recently, we received information that an ice vending machine owner was interested in converting their machines to handle agricultural products during the winter months and then return to ice for the remainder of the year. Again, the issue here is price comparison, these commodities are marketed by weight at the retail market place today (big box, farm supply, sport/outdoor and other similar stores). This proposal is necessary to prevent the next company coming up with another method of sale such as by the bag/sack, bushel, truck load... It is essential to provide equity in the market place and the most accurate way to test products delivered by agricultural vending machines is by net weight.

Example 1: Corn Express







Example 2: Corn Stop





**CWMA 2016 Report:**

<b>Item New-8</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b> A state regulator from Iowa asked if this machine has been NTEP certified. A state regulator from Minnesota commented that she agrees these products should be sold by weight once the dispensing devices are NTEP certified. A state regulator from Kansas asked whether this provision apply to feed dispensers at zoos, etc. He suggested there may need to be exceptions.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b> <input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input checked="" type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> )

<input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>
This proposal duplicates the existing method of sale for feed and is unnecessary. There is a question as to whether the dispensing devices are NTEP certified.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (<i>If different than regional committee recommendation</i>)</b>
<b>Regional recommendation to NCWM for item status:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input checked="" type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> ) <input type="checkbox"/> Unable to consider at this time ( <i>Provide explanation in the "Additional Comments" section below</i> )
<b>Regional Report to NCWM:</b>
This proposal duplicates the existing method of sale for feed and is unnecessary. There is a question as to whether the dispensing devices are NTEP certified.

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

## 2302-5 D Electric Watthour

### Source:

NIST OWM (2016)

### Purpose:

- 1) Make the weights and measures community aware of work being done within the U.S. National Work Group on Electric Vehicle Fueling and Submetering to develop proposed requirements for electric watthour meters used in submeter applications in residences and businesses;
- 2) Encourage participation in this work by interested regulatory officials, manufacturers, and users of electric submeters.
- 3) Allow an opportunity for the USNWG to provide regular updates to the S&T Committee and the weights and measures community on the progress of this work;
- 4) Allow the USWNG to vet specific proposals as input is needed.

### Item Under Consideration:

Create a "Developing Item" for inclusion on the NCWM S&T Committee Agenda (and a corresponding item is proposed for inclusion on the L&R Committee Agenda) where progress of the USNWG can be reported as it develops legal metrology requirements for electric watthour meters and continues work to develop test procedures and test equipment standards. The following narrative is proposed for this item:

In 2012, NIST OWM formed the U.S. National Working Group on Electric Vehicle Fueling and Submetering to develop proposed requirements for commercial electricity-measuring devices (including those used in sub-metering electricity at residential and business locations and those used to measure and sell electricity dispensed as a vehicle fuel) and to ensure that the prescribed methodologies and standards facilitate measurements that are traceable to the International System of Units (SI).

In 2013, the NCWM adopted changes recommended by the USNWG to the NIST Handbook 130 requirements for the Method of Sale of Commodities to specify the method of sale for electric vehicle refueling. At the 2015 NCWM Annual Meeting, the NCWM adopted NIST Handbook 44 Section 3.40 Electric Vehicle Refueling Systems developed by the USNWG.

This Developing Item is included on the Committee's agenda (and a corresponding item is proposed for inclusion on the L&R Committee Agenda) to keep the weights and measures community apprised of USNWG current projects, including the following:

- The USNWG continues to develop recommended test procedures for inclusion in a new EPO 30 for Electric Vehicle Refueling Equipment along with proposed requirements for field test standards.
- The USNWG is continuing work to develop a proposed code for electricity-measuring devices used in sub-metering electricity at residential and business locations. This does not include metering systems under the jurisdiction of public utilities. The USNWG hopes to have a draft code for consideration by the community in the 2016-2107 NCWM cycle.

The USNWG will provide regular updates on the progress of this work and welcomes input from the community.

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

Tina Butcher  
Chairman to the NIST USNWG on Electric Vehicle Refueling and Submetering  
301-975-2196  
[tbutcher@nist.gov](mailto:tbutcher@nist.gov)

or

Juana Williams  
Technical Advisor to the NIST USNWG on Electric Vehicle Refueling and Submetering  
301-975-3989  
[Juana.williams@nist.gov](mailto:Juana.williams@nist.gov)

**Background/Discussion:**

The creation of Developing Items on both the L&R and S&T Committee agendas will provide for a venue to allow the USNWG to update the weights and measures community on continued work to develop test procedures and test equipment standards. This item will also provide a forum for reporting on work to develop proposed method of sale requirements for electric watt-hour meters and a tentative device code for electric watt-hour meters in residential and business locations and serve as a placeholder for eventual submission of these proposals for consideration by NCWM.

**Regional Association Comments:**

At the 2015 WWMA Annual Meeting a NIST Technical Advisor requested this be a Developing Item so that it appear on the L&R Agenda. This item will allow for a venue to update the work of the USNWG for Electricity as a Fuel and Submetering. WWMA forwarded this item to NCWM and recommended that it be a Developing Item.

At the 2015 NEWMA Interim Meeting a state regulator stated that electrical vehicle charging stations are a high priority in his state, which is also building a hydrogen infrastructure. While hydrogen will likely be adopted for "fleet use only" for the near future, he concurs this is an important agenda item. NEWMA forwarded this to the NCWM as a Developing Item.

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

**CWMA 2016 Report:**

<b>Item 2302-5</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
No comments.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>
No comments were heard during open hearings and the committee feels it is still a developing item.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>
<b>Regional recommendation to NCWM for item status:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> ) <input type="checkbox"/> Unable to consider at this time ( <i>Provide explanation in the "Additional Comments" section below</i> )
<b>Regional Report to NCWM:</b>
No comments were heard during open hearings and the committee feels it is still a developing item.

Additional letters, presentations and data may have been part of the committee’s consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

**2307 NIST HANDBOOK 130 – UNIFORM ENGINE FUELS AND AUTOMOTIVE LUBRICANTS REGULATION**

**2307-1 2.14. Products for Use in Lubricating Automatic Transmission Fluids and 3.14. Automatic Transmission Fluid. (See Related Item 232-9)**

**Source:**  
American Petroleum Institute (API) (2016)

**Purpose:**  
Define how transmission fluids shall be identified in the marketplace on delivery documents and invoices and receipts from service.

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

**Section 2. Standard Fuel Specifications**

**2.14. Products for Use in Lubricating Automatic Transmissions.** – Any ~~automatic~~ transmission fluid sold without limitation as to type of transmission for which it is intended shall meet all ~~automotive~~ manufacturers' recommended requirements for transmissions in general use in the state. ~~Automatic~~ Transmission fluids that are intended for use only in certain transmissions, ~~as disclosed on the label of its container,~~ shall meet ~~the latest automotive~~ the original equipment manufacturer's recommended requirements for those transmissions or have been demonstrated to be suitable for use in those transmissions. Adherence to ~~automotive~~ the original equipment manufacturer's recommended requirements shall be based on tests currently available and published by the transmission or vehicle manufacturer to the lubricants' industry and the state regulatory agency. Suitability for use shall be based upon appropriate field, bench and/or transmission rig testing. Any manufacturer of a transmission fluid making suitable-for-use claims shall provide, upon request by a duly authorized representative of the Director, documentation of such claims.

(Added 2004, Amended 20XX)

**2.14.1. Transmission Fluid Additives.** – Any material offered for sale or sold as an additive to automatic transmission fluids shall be compatible with the automatic transmission fluid to which it is added, and shall meet all performance claims as stated on the label. Any manufacturer of any such product sold in this state shall provide, upon request by a duly authorized representative of the Director, documentation of any claims made on their product label.

(Added 20XX)

### Section 3. Classification and Method of Sale of Petroleum Products

#### 3.14. Automatic Transmission Fluid.

**3.14.1. Container Labeling.** – The label on a container of ~~automatic~~ 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 ~~automatic~~ 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 "~~Automatic~~ Transmission Fluid";
- (d) ~~the duty type of classification; 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 those set by original equipment manufacturers and standards-setting organizations such as SAE and are acknowledged by reference; and
- (e) an accurate statement of the quantity of the contents in terms of liquid measure.

(Amended 20XX)

**3.14.2. Identification on** ~~Documentation of Claims Made Upon Product Label.~~ – Transmission fluid sold in bulk shall be identified on the manufacturer, packer, seller or distributor invoice, bill of lading, shipping paper, or other documentation with the information listed below:

- (a) the brand name;
- (b) the name and place of business of the manufacturer, packer, seller, or distributor;
- (c) the words "Transmission Fluid";
- (d) ~~the duty type of classification; the primary performance claim or claims met by the fluid or reference to where these claims may be viewed (for example, website reference).~~ Performance

claims include those set by original equipment manufacturers and standards-setting organizations such as SAE and are acknowledged by reference; and

(e) an accurate statement of the quantity of the contents in terms of liquid measure.

(Added 2004, Amended 20XX)

3.14.3. Identification on Service Provider Documentation – Transmission fluid installed from a bulk tank at time of transmission service shall be identified on the customer invoice with the information listed below:

(a) the brand name;

(b) the name and place of business of the service provider;

(c) the words “Transmission Fluid”;

(d) the primary performance claim or claims met by the fluid or reference to where these claims may be viewed (for example, website reference). Performance claims include those set by original equipment manufacturers and standards-setting organizations such as SAE and are acknowledged by reference; and

(e) an accurate statement of the quantity of the contents in terms of liquid measure.

(Added 20XX)

3.14.4. Bulk Delivery – When the transmission fluid is sold in bulk, an invoice, bill of lading, shipping paper, or other documentation must accompany each delivery. This document must identify the fluid as defined in Section 3.14.2.

(Added 20XX)

3.14.5. Storage Tank Labeling. – Each storage tank of transmission fluid shall be labeled with the following:

(a) the brand name;

(b) the primary performance claim or claims met by the fluid or reference to where these claims may be viewed. Performance claims include those set by original equipment manufacturers and standards-setting organizations such as SAE and are acknowledged by reference.

(Added 20XX)

3.14.6. Documentation of Claims Made Upon Product Label. – Any manufacturer, packer, or distributor of any product subject to this article and sold in this state shall provide, upon request of duly authorized representatives of the Director, documentation of any claim made upon their product label.

(Added 20XX)

**Background/Discussion:**

Many original equipment manufacturers (OEMs) set their own transmission fluid standards and recommend that consumers use these fluids in their designated applications. However, the current version of NIST Handbook 130 does not adequately define how transmission fluids shall be identified in the marketplace on delivery documents and invoices and receipts from service. Requiring more specific information on invoices and receipts will provide some assurance to consumers that recommended automatic transmission fluids are being installed in their cars and trucks.

The changes proposed are consistent with those approved for gasoline and diesel engine (motor) oils sold in packages or dispensed from bulk containers.

At the 2016 NCWM Interim Meeting Dr. Curran (FALS Chairman) recommended that this and (related Item 232-9) be an Informational Item, so that the language can be developed. Several members supported additional work on this proposal. Mr. Ferrick (API) will be circulating to all interested parties for review. The Committee recommends this as an Informational Item. At the 2016 NCWM Annual Meeting, Mr. Ferrick remarked that he is submitting updated language to the Committee for consideration. The Committee recommends that the updated language be for consideration.

**Regional Association Comments:**

At the 2015 WWMA Annual Meeting, Kevin Ferrick (API), commented that there is a need to better define ATF in the marketplace and the Automotive Oil Change Association supports this item. NIST provided some formatting edits to conform with the handbook standard. A regulator expressed concerns for the term “performance claim for fluid” which would be challenging to enforce. The WWMA recommends removing the word “package from Section 3.14.1.a. WWMA forwarded the amended item to NCWM, recommending it as a Voting Item.

**2.14. Products for Use in Lubricating Automatic Transmissions.** – Any automatic transmission fluid sold without limitation as to type of transmission for which it is intended shall meet all automotive manufacturers’ recommended requirements for transmissions in general use in the state. Automatic transmission fluids that are intended for use only in certain transmissions, as disclosed on the label of its container **or on an invoice or receipt when dispensed from a receptacle, dispenser, or storage tank**, shall meet the latest automotive manufacturers’ recommended requirements for those transmissions. Adherence to automotive manufacturers’ recommended requirements shall be based on tests currently available to the lubricants’ industry and the state regulatory agency. Any material offered for sale or sold as an additive to automatic transmission fluids shall be compatible with the automatic transmission fluid to which it is added and shall meet all performance claims as stated on the label **or on the invoice or receipt when dispensed from a receptacle, dispenser or storage tank**. Any manufacturer of any such product sold in this state shall provide, upon request by a duly authorized representative of the Director, documentation of any claims made on their product label **or on an invoice or receipt when dispensed from a receptacle, dispenser, or storage tank**.

**3.14. Automatic Transmission Fluid.**

**3.14.1. Labeling.** – The label on a container of automatic transmission fluid **as well as the invoice or receipt from bulk distribution and service on an automatic transmission that includes the installation of automatic transmission fluid dispensed from a receptacle, dispenser, or storage tank** shall not contain any information that is false or misleading. ~~In addition, each container of automatic transmission fluid shall be labeled with the following:~~

**a) Each ~~packaged~~ container shall be labeled with the following:**

- (1) the brand name;
- (2) the name and place of business of the manufacturer, packer, seller, or distributor;
- (3) the words “Automatic Transmission Fluid”;
- (4) ~~the duty type of classification;~~ **the performance claim or claims for the fluid;** and
- (5) an accurate statement of the quantity of the contents in terms of liquid measure.

**b) Each receptacle and/or storage tank of automatic transmission fluid shall be labeled with the following:**

- (1) **the brand name;**
- (2) **the name and place of business of the manufacturer, packer, seller, or distributor; and**
- (3) **the performance claim or claims for the fluid; and**
- (4) **the words “Automatic Transmission Fluid.”**



**3.14.2. Documentation of Claims Made Upon Product Label.** – Any manufacturer, ~~or~~ packer, or distributor of any product subject to this article and sold in this state shall provide, upon request of duly authorized representatives of the Director, documentation of any claim made upon their product label.

(Added 2004) (Amended 20XX)

At the 2015 CWMA Interim Meeting a comment was received from American Petroleum Institute (API) that NIST Handbook 130 does not allow for proper identification of transmission fluids sold in states, and API supports adding new language for both, the Method of Sale Regulation and the Engine Fuels and Automotive Lubricants Regulation. He indicated the term ‘receptacle’ might need to be changed in the proposal as well as performance claim language to performance specification instead. He explained that most engine manufacturers (OEMs) have their own transmission fluid standards, unlike motor oil. An industry representative from the Automotive Oil Change Association commented that one possibility could be a part number for transmission fluid labeling. Most OEMs will provide a preferred brand as well as at least one alternate option. Industry representatives recommended this proposal continue as a Developing Item. A state regulator commented this is an important proposal and should move forward, but should be fully vetted. CWMA believes that industry will continue to work on collaboration and education with regard to this item believes the item is sufficiently developed. CWMA forwarded the item to NCWM, recommending that it be a Voting Item.

At the 2015 NEWMA Interim Meeting a representative of the American Petroleum Institute (API) commented that this item is intended to add some definition to transmission fluid so the consumer knows what they are getting, and it is properly labeled. A state regulator asked how the product is displayed or where it is stored at a retail oil change facility. He asked if you have a service station with a permanent tank for transmission fluid, do they pour one type over another. The API representative said that different types of transmission fluids should not be commingled, but common ATF’s from different manufacturers can be commingled. Another state regulator asked for clarification on why item d – “duty type” of classification was changed to performance claim or claims for the fluid. Some who attended the CWMA meeting commented that API made comments during that meeting in regards to the change, and would provide further clarification at the 2016 NCWM Interim Meeting. NEWMA considered the item to be fully developed and forwarded it to NCWM, recommending that it be a Voting Item.

At the 2015 SWMA Annual Meeting, Mr. Kevin Ferrick (API) stated that the proposed language has been shared with the WWMA, CWMA and NEWMA; API’s Lubricants Group; AOCA; and others. API’s plan is to provide an amended version in time for the NCWM 2016 Interim Meeting. It was noted that NIST provided some formatting edits and API recommends that version be submitted for inclusion into Publication 15. Dr. Curran (FALS Chairman) stated that the FALS Committee would review the item and have comments for the 2016 NCWM Interim Meeting. The SWMA supported the item with the formatting changes recommended by NIST (refer to 2015 WWMA Annual Meeting and to Item 237-4). SWMA is recommended that this be a Voting Item.

At the 2016 NEWMA and CWMA Annual Meetings, Mr. Ferrick remarked that changes have been made in the language and his is forwarding to stakeholders for comment.

**CWMA 2016 Report:**

<b>Item 2307-1</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
This item was heard as a companion item to 2302-4. An industry representative from API commented that the language as it is currently proposed continues to move forward to gain industry consensus. He supports the item and recommends it move forward as a voting item. He further commented there may be a request for the additive supplier to provide support data.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input checked="" type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )

<b>Reasons for the committee recommendation:</b>
The submitter believes this proposal is fully developed. Any further edits would be to provide greater clarity to the proper identification of transmission fluid in the marketplace. The committee feels this item is ready for voting status.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>
<b>Regional recommendation to NCWM for item status:</b>
<input checked="" type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> ) <input type="checkbox"/> Unable to consider at this time ( <i>Provide explanation in the "Additional Comments" section below</i> )
<b>Regional Report to NCWM:</b>
The submitter and the committee believe this proposal is fully developed and ready for voting status. Any further edits would be to provide greater clarity to the proper identification of transmission fluid in the marketplace.

Additional letters, presentations and data may have been part of the committee’s consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

**New-3**      **3. Classification and Method of Sale of Fuels ~~Petroleum Products~~ (See related New Item 2)**

**Source:**  
KMoore Consulting LLC (2017)

**Purpose:**  
Align the ethanol labeling language with the recently released Federal Trade Commission updates to 16 CFR 306 on the Automotive Fuel Rating Rule as it pertains to ethanol fuel blend rating, labeling on retail dispensers, certification and record keeping requirements.

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

**Section 3. Classification and Method of Sale of Fuels ~~Petroleum Products~~**

- .
- .
- .

**3.8. Ethanol Flex Fuel.**

**3.8.1. How to Identify Ethanol Flex Fuel.** – Ethanol flex fuel shall be identified as Ethanol Flex Fuel or EXX Flex Fuel.

**3.8.2. Labeling Requirements.**

- (a) Ethanol flex fuel ~~with an ethanol concentration no less than 51 and no greater than 83 volume percent shall be labeled “Ethanol Flex Fuel, minimum 51 % ethanol.”~~ **shall be identified and labeled in accordance with the Federal Trade Commission Automotive Fuel Ratings, Certification and Posting Rule, 16 CFR 306, as amended.**

**(Amended 20XX)**

~~(b) Ethanol flex fuel with an ethanol concentration less than or equal to 50 volume percent shall be labeled “**EXX Flex Fuel, minimum YY % ethanol,**” where the **XX** is the ethanol concentration in volume percent and **YY** is **XX** minus five (= 5). The actual ethanol concentration of the fuel shall be **XX** volume percent plus or minus five ( $\pm$  5) volume percent.~~

~~(Added 2014)~~

~~(c) A label shall be posted which states “**For Use in Flexible Fuel Vehicles (FFV) Only.**” This information shall be clearly and conspicuously posted on the upper 50 % of the dispenser front panel in a type at least 12.7 mm (. in) in height, 1.5 mm (1/16 in) stroke (width of type). A label shall be posted which states, “**CHECK OWNER’S MANUAL,**” and shall not be less than 6 mm (. 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.~~

~~(Amended 2007, 2008, and 2014, and 20XX)~~

**Background/Discussion:**

It is important that NIST Handbook 130 language stay in alignment with government regulations. The FTC regulation update takes effect July 14, 2016. A copy of that notice is available at <http://www.ncwm.net/meetings/interim/publication-15>.

**CWMA 2016 Report:**

<b>Item New-3</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
A state regulator from Missouri commented that this item is being addressed in the FALS Handbook 130 Uniform Engine Fuels update that should be ready in draft form for review by the 2017 interim meeting.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>
This item should be reviewed and vetted through the FALS.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>
<b>Regional recommendation to NCWM for item status:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> ) <input type="checkbox"/> Unable to consider at this time ( <i>Provide explanation in the “Additional Comments” section below</i> )
<b>Regional Report to NCWM:</b>
Please provide your report in this section exactly how you want it to appear in the NCWM reports to represent your region’s considerations, support or opposition, and recommendations. <b>This will replace any previous reports from your region on this item.</b>
A regulator and member of the FALS commented that this item is being addressed in the FALS Handbook 130

Uniform Engine Fuels update that should be ready in draft form for review by the 2017 interim meeting.

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

**2307-2**      **4.1. Water in Retail Engine Fuel Storage Tanks, Gasoline Alcohol Blends, Biodiesel Blends, Ethanol Flex Fuel, Aviation Gasoline, and Aviation Turbine Fuel. and 4.2. Water in Gasoline, Diesel, Gasoline Ether, and Other Fuels.**

**Source:**

State of Colorado (2016)

**Purpose:**

Provide a consistent best management practice with regard to managing water in any engine fuel utilizing current detection technology.

**Item under Consideration:**

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

**4.1. Water in Retail Engine Fuel Storage Tanks Gasoline Alcohol Blends, Biodiesel Blends, Ethanol Flex Fuel, Aviation Gasoline, and Aviation Turbine Fuel.** No water phase greater than 6 mm (¼ in) as determined by an appropriate detection paste or other acceptable means, is allowed to accumulate in any **retail** tank utilized in the storage of **engine fuels including, gasoline, gasoline-alcohol blend, biodiesel, biodiesel blends, ultra-low sulfur diesel, ethanol flex fuel, aviation gasoline, and aviation turbine fuel, gasoline ether blends, kerosene, or any other engine fuels.**

(Amended 2008, 2012, ~~and 2014, and 20XX~~)

**4.2. ~~Water in Gasoline, Diesel, Gasoline Ether, and Other Fuels. Water shall not exceed 25 mm (1 in) in depth when measured with water indicating paste or other acceptable means in any tank utilized in the storage of diesel, gasoline, gasoline ether blends, and kerosene sold at retail except as required in Section 4.1. Water in Gasoline Alcohol Blends, Biodiesel Blends, Ethanol Flex Fuel, Aviation Gasoline, and Aviation Turbine Fuel.~~**

(Amended 2008, 2012, and 2014)

**Background/Discussion:**

All engine fuels degrade more rapidly in the presence of water, and can result in off spec product, microbial growth and internal corrosion of tanks and tank equipment. Besides impacting the quality of fuel such as when ethanol dissolves in water causing phase separation, affecting RVP and reducing AKI or octane number, the occurrence of microbial growth and corrosion particulates clog dispenser filters and affect other fuel clarity parameters. The fuels landscape has changed significantly across the country and currently almost all gasoline is blended with ethanol and all diesel is now Ultra Low Sulfur Diesel with up to five percent biodiesel. This proposal provides a consistent best management practice with regard to managing water in any engine fuel utilizing current detection technology (water finding paste or other acceptable means), and also simplifies the handbook by eliminating the necessity for paragraph 4.2.

At the 2016 NCWM Interim Meeting, Dr. Curran (FALS Chairman) remarked that FALS is forming an informal focus group (FG) lead by Mr. Albuquerque (CO) for developing this item. Bill Hornback (Chevron Products Co.) remarked that this is no way to detect ¼ in water. The Committee agrees that additional work needs to be done and recommends this as an Informational Item.

At the 2016 NCWM Annual Meeting, Mahesh Albuquerque (FG Chair) gave a presentation regarding water in fuel storage tanks. Mr. Albuquerque will continue to develop this item through the informational focus group and report back to FALS on their progress.

**Regional Association Comments:**

At the 2015 WWMA Annual, Mahesh Albuquerque (CO and submitter) that this proposal would serve to protect fuel quality from degradation caused by water contamination and provides best management practices to prevent microbial growth, particulate accumulation and tank corrosion, in underground storage tanks. It would also simplify NIST Handbook 130 by eliminating redundancy. During the voting session, a regulator suggested to have data collected to support the allowance of ¼ inch water phase for all the listed products. WWMA forwarded the item to NCWM, recommending it be a Voting Item.

At the 2015 CWMA Interim Meeting multiple state regulators support this proposal as a Voting Item. CWMA believes it sufficiently developed forwarded it to NCWM, recommending that it be a Voting Item.

At the 2015 NEWMA Interim Meeting, no comments were heard and this item was forwarded to the NCWM, recommending that it be a Voting Item.

At the 2015 SWMA Annual Meeting, Walter Huff (Mississippi Petroleum Marketers Assoc.) spoke in opposition of this item. The Committee heard several comments from state officials and industry that support this item. The SWMA believes this item is fully developed and forwarded it to NCWM recommending it as a Voting Item.

**CWMA 2016 Report:**

<b>Item 2307-2</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
A state regulator from Missouri who sits on the board of the Steel Tank Institute is currently on a working group that is revising the recommended practices for water in storage tanks. He believes NCWM and Handbook 130 should be harmonized with this group, because there is a broad-based industry stakeholder group working on these recommendations. He further commented that the maximum allowable limit will be one-half inch, as well as a frequency requirement that varies depending on the type of tank. A state regulator from Minnesota commented that their state requirement is one-half inch maximum allowable, but in essence, that is a de minimus level that identifies any water. An industry representative from API asked several questions for consideration including: 1) how are UST facilities measuring the ¼” water; are they able to use electronic measuring equipment or are they relying on stick and paste; 2) has Colorado or any other state identified a correlation between tank conditions when 1” of water is present versus a ¼” of water; 3) are USTs changing out their filters more often with 1” of water than with ¼” of water; is there any correlation between water in the tanks and consumer complaints; 4) if the facilities are using filters, are they using water sensitive filters; 5) how often are facilities cleaning their tanks; 6) how often are facilities removing the water from the tanks; 7) is there a correlation to the amount of water measured in the tank? The state regulator from Missouri who sits on the board of the Steel Tank Institute commented that any presence of water will cause the issues such as corrosion that are trying to be prevented. A state regulator from Iowa asked if there were below ground tanks that had sump or some type of water draw. The answer is yes. An industry representative from the National Biodiesel Board commented that NBB does not oppose this idea, but also doesn’t know the most effective de minimus amount. She commented that NBB believes that regardless of the maximum allowable, all fuels should have the same requirement.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>
There are still questions regarding what the maximum allowable amount of water should be, and there seems to be no data to support any specific recommendation. The committee recommends this item continue to be developed,

and keep track of STI's recommended practices development.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: <i>(If different than regional committee recommendation)</i></b>
<b>Regional recommendation to NCWM for item status:</b> <input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda <i>(In the case of new items, do not forward to NCWM)</i> <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda <i>(To be developed by source)</i> <input type="checkbox"/> Unable to consider at this time <i>(Provide explanation in the "Additional Comments" section below)</i>
<b>Regional Report to NCWM:</b> <p>A regulator who sits on the board of the Steel Tank Institute is currently on a working group that is revising the recommended practices for water in storage tanks. He believes NCWM and Handbook 130 should be harmonized with this group, because there is a broad-based industry stakeholder group working on these recommendations. He further commented that the maximum allowable limit will likely be one-half inch, as well as a frequency requirement that varies depending on the type of tank. A regulator commented that their state requirement is one-half inch maximum allowable, but essentially it is a de minimus level that identifies any water. An industry representative from API asked several questions for consideration including: 1) how are UST facilities measuring the ¼" water; are they able to use electronic measuring equipment or are they relying on stick and paste; 2) has Colorado or any other state identified a correlation between tank conditions when 1" of water is present versus a ¼" of water; 3) are USTs changing out their filters more often with 1" of water than with ¼" of water; is there any correlation between water in the tanks and consumer complaints; 4) if the facilities are using filters, are they using water sensitive filters; 5) how often are facilities cleaning their tanks; 6) how often are facilities removing the water from the tanks; 7) is there a correlation to the amount of water measured in the tank? The state regulator on the STI board commented that any presence of water will cause the issues such as corrosion that are trying to be prevented. An industry representative from the National Biodiesel Board commented that NBB does not oppose this idea, but also doesn't know the most effective de minimus amount. She commented that NBB believes that regardless of the maximum allowable limit, all fuels should have the same requirement.</p>

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

**2307-3                    4.3. Dispenser Filters**

**Source:**

Missouri Department of Agriculture (2012)

**Purpose:**

Recognize the need for 10 micron or smaller nominal pore-sized filters for today's diesel engines.

**Item under Consideration:**

Amend the NIST Handbook 130, Engine Fuels and Automotive Lubricants Regulation as follows:

**4.3. Dispenser Filters.**

**4.3.1. Engine Fuel Dispensers.**

- (a) All gasoline, gasoline-alcohol blends, gasoline-ether blends, ethanol flex fuel, and M85 methanol dispensers shall have a 10 micron or smaller nominal pore-sized filter.

- (b) All biodiesel, biodiesel blends, diesel, and kerosene dispensers shall have a ~~30~~ 10 micron or smaller nominal pore-sized filter **with the following exceptions:**
- 1) **Dispensers with flow rates greater than 15 gallons per minute shall use a 30 micron or smaller nominal pore size filter.**
  - 2) **Dispensers with flow rates less than or equal to 15 gallons per minute in the following states may use a 30-micron or smaller nominal pore size filter during the months of December through March. These states include: Nevada, Idaho, Montana, Wyoming, Colorado, South Dakota, Nebraska, Minnesota, Iowa, Wisconsin, Michigan, Illinois, Pennsylvania, New York, Vermont, New Hampshire, and Maine. This exception has a sunset date of April 2020.**
  - 3) **Dispensers with flow rates less than or equal to 15 gallons per minute in North Dakota may use a 30 micron or smaller nominal size filter during the months of November through March. This exception has a sunset date of April 2020.**
- (Amended 2014 **and 20XX**)

**Background/Discussion:**

Abnormal dispenser filter plugging at retail will alert the retailer of potential storage tank problems. Requiring 10 micron filters for all products will reduce the inventory and the potential of installing the wrong filter for all products at the same site.

NCWM 2012 Interim Meeting: Mr. Ronald Hayes, FALS Chair, informed the Committee that FALS recommended that this item be Informational because of industry concerns that 10 micron filters would be too restrictive of flow in high-flow systems. One industry representative expressed opposition for the use of 10 micron filters and recommends this item to be Withdrawn. A representative of an automobile manufacturer claimed diesel passenger vehicles do not have the sophisticated filtration systems commonly found on commercial duty vehicles and 10 micron filters on dispensers are needed for protection from particulate contamination. As proposed, this item could cause clogging of diesel dispenser filters in colder climates. The Committee believes this item has merit but lacks a consensus and also believes that FALS needs to address these concerns. The 2012 L&R Committee designated this item as an Informational Item and assigned it to FALS for further development.

At the 2012 NCWM Interim Meeting it was apparent to the Committee that that there are many unresolved issues related to passenger vehicles. The Committee encourages the FALS to continue developing this item.

At the 2012 NCWM Annual Meeting several stakeholders spoke in opposition on this item. Mr. Ronald Hayes, FALS Chair remarked that the FALS worked on this item in 2007 and believes FALS needs to continue to work on this item. The NCWM L&R Committee agreed that this item is not ready and supports the continued development by FALS.

At the 2013 NCWM Interim Meeting Mr. Hayes, FALS Chairperson, remarked that a similar item was brought before the Committee in 2007. FALS did not have enough time in their work session to work on this item. There are several stakeholders and states that are having issues with the terminology and would like it removed from the agenda. Mr. Ronald Hayes (Missouri) remarked that they supported this item because contamination is an issue with cars that do not have filtering systems. The Committee reviewed comments from the Regional Associations however; FALS did not have sufficient time review and consider recommendation to the Committee. The Committee would like for FALS to continue to work on this item and is proposing this as an Informational Item.

At the 2013 NCWM Annual Meeting Mr. Hayes, FALS Chair requested that the Committee allow them to continue to work on a recommendation for this item. There was opposition on moving this item forward. In less than two years since this proposal came forward there has been no data developed. The Committee reviewed Regional Association reports, open hearing comments and letters received changed the status of this item to Developing.

At the 2014 NCWM Interim Meeting Mr. Hayes (Missouri) who submitted the proposal offered modified language and supporting data to support the flow rate on 10-micron diesel filters. There was considerable discussion in regards to the fill time reduction, burdensome cost for station owners, and equipment and filter maintenance. It was noted that there is work being done within ASTM but at this time that information cannot be shared. The Committee reviewed the Item Under Consideration within NCWM Interim Publication 15 (2014). The Committee moved forward the modified language provided by Mr. Hayes for consideration as a Voting Item.

At the 2014 NCWM Annual Meeting the Committee reviewed several letters and additional data submitted by the Petroleum Marketers Association of American (PMAA). The FALS recommended this Item move forward for a Vote. During open hearings there were concerns were mixed in regards to this this Item. Numerous were concerns were expressed concerning the data from PMAA. Several comments were heard that ASTM should be allowed to develop a standard.

At the 2015 NCWM Interim Meeting the FALS Chair notified the Committee that this proposal was discussed in their work session and the FALS group is divided on a recommendation. Russ Lewis (Marathon Petroleum Co.) submitted the CRC Report “Diesel Fuel Storage and Handling guide. In addition, Prentiss Searles (API) provided the Committee with a listing of the various studies and the findings that support moving this Item forward. The Committee reviewed additional letters and Regional Association recommendations. During open hearing testimony there was discussion as to whether this is a weights and measures issue or a housekeeping issue for the stations. There was lengthy discussion was at length as to the type of particulates and contaminates that a 10 micron could filter. Cost effectiveness was a concern as to who would bear the burden of the cost. With the extensive discussion on this subject matter and new information received the Committee is designating this item as a Voting Item.

At the 2015 NCWM Annual Meeting, Mr. Lewis (on behalf of API) provided a presentation on dispenser filters. Mr. Curran (FALS Chair) informed the Committee that FALS is divided on this issue but would like it to proceed with a vote. There were no new comments other than those that have already been provided in this report. The outcome of the voting session was a split vote; therefore, it was returned to the Committee.

At the 2016 NCWM Interim Meeting, Prentiss Searles (API) provided a presentation and remarked that North Dakota is being stricken from Section 4.3.1.(b)2. Dr. Curran (FALS Chairman) remarked that FALS had some opposition from marketers on this proposal. However, FALS is recommending this move forward as a Voting Item. There was discussion on the floor as to who is responsible for clean tanks, refiners, terminals, or retailers? It was also mentioned that the ASTM standard may not be sufficient. The Committee is recommending this as a Voting Item.

At the 2016 NCWM Annual Meeting, Dr. Curran (FALS Chair) recommended that this item move forward with a vote even though FALS could not reach a consensus on this item. There were several remarks that this item should be withdrawn due to the financial burden that this would have on small independent operators. Oregon, Maine, and Massachusetts requested that they be added to the exemption listing. States were added to the exemption listing based on temperature studies based on ASTM D975 10 percentile ambient temperature tables (fig. X 5.2 and 5.3). Those in support of this proposal agree that studies on fuel cleanliness has been done. This item protects the consumer and this proposal adds the last line of defense. Stations must maintain their tanks. However; they claim contamination is in the product that is being delivered. There was also a comment as to how the sunset date of April 2020 was determined. Russ Lewis remarked that the sunset date was proposed so that if adopted and this did not resolve the issue, then it will allow for a switch back to the 30-micron filter.

#### **Regional Association Comments:**

At the 2015 WWMA Annual Meeting, Prentiss Searles (API) gave a presentation and provided the following information:

All biodiesel, biodiesel blends, diesel, and kerosene dispensers shall have a ~~30~~ 10 micron or smaller nominal pore-size filter ~~except for dispensers with flow rates greater than 15 gallons per minute which shall have a 30 micron or smaller nominal pore size filter~~ with the following exceptions:

1. Dispensers with flow rates greater than 15 gallons per minute shall use a 30 micron or smaller nominal pore size filter.



2. Dispensers with flow rates less than 15 gallons per minute in the following states may use a 30 micron or smaller nominal pore size filter during the months of December through March. These states include: Nevada, Idaho, Montana, Wyoming, Colorado, North Dakota, South Dakota, Nebraska, Minnesota, Iowa, Wisconsin, Michigan, Illinois, Pennsylvania, New York, Vermont, New Hampshire, and Maine. This exception has a sunset date of April 2019.

3. Dispensers with flow rates less than 15 gallons per minute in North Dakota may use a 30-micron or smaller nominal pore size filter during the months of November through March. This exception has a sunset date of April 2019.

A regulator was concerned with problems related to low temperatures in above ground diesel fuel storage tanks. Another regulator was concerned with the proposed sunset date approaching quickly. WWMA recommends the revised language that appears below be recommended as a Voting Item. This will address concerns for cold flow, which were raised at previous meetings. WWMA recommended that the item be a Voting Item with the following language:

#### 4.3. Dispenser Filters.

##### 4.3.1. Engine Fuel Dispensers.

- (c) All gasoline, gasoline-alcohol blends, gasoline-ether blends, ethanol flex fuel, and M85 methanol dispensers shall have a 10 micron or smaller nominal pore-sized filter.
- (d) All biodiesel, biodiesel blends, diesel, and kerosene dispensers shall have a ~~30~~ 10 micron or smaller nominal pore-sized filter **with the following exceptions:**
  - 1. Dispensers with flow rates greater than 15 gallons per minute shall use a 30-micron or smaller nominal pore size filter.**
  - 2. Dispensers with flow rates equal to or less than 15 gallons per minute in the following states may use a 30-micron or smaller nominal pore size filter during the months of December through March. These states include: Nevada, Idaho, Montana, Wyoming, Colorado, North Dakota, South Dakota, Nebraska, Minnesota, Iowa, Wisconsin, Michigan, Illinois, Pennsylvania, New York, Vermont, New Hampshire, and Maine. This exception has a sunset date of April 2020.**
  - 3. Dispensers with flow rates equal to or less than 15 gallons per minute in North Dakota may use a 30-micron or smaller nominal pore size filter during the months of November through March. This exception has a sunset date of April 2020.**

(Added 2008) (Amended 2014 **and 20XX**)

At the 2015 CWMA Interim Meeting, a state regulator support the language provided by API at the 2015 WWMA Annual Meeting. The new language provides some flexibility to utilize a 10-micron filter in warm weather and switch back to 30-micron filter during cold weather months in specified states. This language also has sunset dates, which allows for the eventuality of standardized 1micron filter on all diesel dispensers with a flow rate of 15 gpm or less. An industry representative from the fuel marketers does not support this proposal. A state regulator commented that she encourages ASTM to develop a tighter specification for fuel purity rather than rely on filters to catch particulate matter. This item is fully developed and industry has sought a reasonable compromise position. There the Committee recommends the API version of this move forward as a Voting Item.

At the 2015 NEWMA Interim Meeting, the L&R Chairman read the revised proposal submitted at the WWMA. A state regulator commented that with the new item to limit water, he does not think this item should move forward. They further commented that state exceptions from the industry proposal, presented at the WWMA, seems arbitrary. NEWMA recommended that this be a Voting Item.

At the 2015 SWMA Annual Meeting, Russ Lewis (representing API) provided a presentation and following revisions. The SWMA accepts the revisions and believes this item is fully developed. The SWMA recommends that the revised language submitted (refer to the 2015 WWMA Annual report for language) be a Voting Item

At the 2016 NEWMA Annual Meeting, an industry representative from Gilbarco commented at the 2016 NEWMA Annual Meeting that the current provision differentiates the requirement for flow rates of 15 gpm or greater. He suggested considering changing the flow rate exemption threshold from 15 gpm to 30 gpm since that rate is already referenced as a high flow rate in Handbook 44. This item was considered fully developed and NEWMA this as a Voting Item.

At the 2016 CWMA Annual Meeting, a state regulator from Missouri commented that this proposal came from an update in Missouri’s state fuel quality requirements, and regardless of whether diesel fuel has biodiesel in it or not is irrelevant – fuel needs to be cleaner. He added that a recent volume of the PEI (Petroleum Equipment Institute) Journal has an article about coverage of current NCWM items being considered. He said that the article points out that off-road equipment has better coverage and protection when it comes to fuel quality, but a customer at a retail station is at the mercy of what fuel housekeeping practices the retail fuel station operator provides. A representative from API commented they support the proposal. During the voting session, a state regulator from Illinois spoke in support of the item. Another state regulator from Missouri commented that the current language is a compromise from the original proposal and addresses some of the concerns fuel marketers had regarding cold weather issues. A state regulator from Minnesota commented that she supports a workmanship standard on all fuels at all levels. She believes the item is fully developed and ready as a Voting Item.

**CWMA 2016 Report:**

<b>Item 2307-3</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
A state regulator from South Dakota commented that this issue has been on the agenda for several years, and it has not passed. A state regulator from Missouri commented that Missouri is credited as a developer of this item, when in fact, the item originated from the Fuels and Lubricants Subcommittee. This item is a separate item that was pulled off a larger revision similar to the update revision currently being made through FALS. He commented that the engine manufacturers originally brought this concern to the FALS, and several years later, we are still deliberating the move from 30 to 10 micron filter maximum pore size. He said that the petroleum marketer group is the only industry group that opposes this item. A state regulator from Minnesota commented that if this proposal is to ever pass, the requirement should be enforced at the terminal as well as at the retail level. A state regulator from Missouri commented that the further downstream the product gets, the more likely it is to collect particulate. An industry representative from API commented that there have been very few issues or complaints from the retailers indicating they were taking possession of dirty fuel. The practicality of a 10 micron filter at the terminal is problematic. An industry representative commented the data indicating a problem with tank corrosion is at retail, not upstream. A state regulator from Kansas had concern that they were told diesel fuel is not made the same way as it used to be, and the 30 micron filter was problematic, which would be exacerbated with a 10 micron filter. A state regulator from Missouri commented that the Conference should consider labeling diesel fuel as filtered or unfiltered. A state regulator commented that the problem is with dirty tanks, not fuel filters.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input checked="" type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>
The committee is in agreement that diesel fuel needs to be as clean as possible for consumers. Filtration at the pump is the most effective way to ensure cleanliness. However, this proposal has not passed after a number of attempts. The committee recommends this proposal be withdrawn and other options be considered and vetted through the FALS.

<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: <i>(If different than regional committee recommendation)</i></b>
<b>Regional recommendation to NCWM for item status:</b> <input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input checked="" type="checkbox"/> Withdraw the Item from the NCWM Agenda <i>(In the case of new items, do not forward to NCWM)</i> <input type="checkbox"/> Developing Item on the NCWM Agenda <i>(To be developed by source)</i> <input type="checkbox"/> Unable to consider at this time <i>(Provide explanation in the "Additional Comments" section below)</i>
<b>Regional Report to NCWM:</b> <p>A regulator commented that Missouri is credited as the submitter of this item, when in fact, the item originated from the Fuels and Lubricants Subcommittee. This item is a separate item that was pulled off a larger revision similar to the update revision currently being made through FALS. He commented that the engine manufacturers originally brought this concern to the FALS, and several years later, we are still deliberating the move from 30 to 10 micron filter maximum pore size. A state regulator from Minnesota commented that if this proposal is to ever pass, the requirement should be enforced at the terminal as well as at the retail level. A regulator commented that the further downstream the product gets, the more likely it is to collect particulate. An industry representative commented that there have been very few issues or complaints from the retailers indicating they were taking possession of dirty fuel. The practicality of a 10 micron filter at the terminal is problematic. An industry representative commented the data indicating a problem with tank corrosion is at retail, not upstream. A regulator commented that the problem is with dirty tanks, not fuel filters. He commented that the Conference should consider labeling diesel fuel as filtered or unfiltered.</p>

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

## 2600 HANDBOOK 133

### 2600-1 1.2.1. Inspection Lots and Section 3.10. Mulch and Soils Labeled by Volume

**Source:**

Mulch & Soil Foundation (2016)

**Purpose:**

Clarify test procedures and promote uniform practices.

**Item under Consideration:**

Amend NIST Handbook 133 as follows:

#### Chapter 1- General Information

#### 1.2. Package Requirements

##### 1.2.1. Inspection Lot

An "inspection lot" (called a "lot" in this handbook) is defined as a collection of identically labeled (except for quantity or identity in the case of random packages) packages available for inspection at one time. The collection of packages will pass or fail as a whole based on the results of tests on a sample drawn from the lot

**in accordance with Section 1.3. Sampling Plans and Section 2.3.4. Random Sample Selection.** This handbook describes procedures to determine if the packages in an “inspection lot” contain the declared net quantity of contents and if the individual packages’ variations are within acceptable limits.

### Chapter 3 – Test Procedures – For Packages Labeled by Volume

#### 3.10. Mulch and Soils Labeled by Volume

Mulch is defined as “any product or material except peat or peat moss that is advertised, offered for sale, or sold for primary use as a horticultural, above-ground dressing, for decoration, moisture control, weed control, erosion control, temperature control, or other similar purposes.”

Soil is defined as “any product or material, except peat or peat moss that is advertised or offered for sale, or sold for primary use as a horticultural growing media, soil amendment, and/or soil replacement.”

##### 3.10.1. Test Equipment:

- A test measure appropriate for the package size that meets the specifications for test measures in Table 3-4. “Specifications for Test Measures for Mulch and Soils”
- Drop cloth/polyethylene sheeting for catching overflow of material
- Level (at least 15 cm [6 in] in length)

<b>Table 3-4. Specifications for Test Measures for Mulch and Soils</b>						
<b>Nominal Capacity of Test Measure<sup>4</sup></b>	<b>Actual Volume of the Measure</b>	<b>Interior Length<sup>1</sup></b>	<b>Interior Width<sup>1</sup></b>	<b>Interior Height<sup>2</sup></b>	<b>Marked Intervals on Interior Wall<sup>3</sup></b>	<b>Volume Equivalent of Marked Intervals</b>
30.2 L (1.07 cu ft) for testing packages that contain less than 28.3 L (1 cu ft or 25.7 dry qt)	31.9 L (1.13 cu ft)	213.4 mm (8.4 in)	203.2 mm (8.0 in)	736.6 mm (29 in)	12.7 mm ( <sup>1</sup> / <sub>2</sub> in)	550.6 mL (33.6 cu in)
28.3 L (1 cu ft)	<del>28.3 L</del> <del>(1 cu ft)</del>  <u>33.04 L</u> <u>(1.16 cu ft)</u>	304.8 mm (12 in)	304.8 mm (12 in)	<del>304.8 mm</del> <del>(12 in)</del>  <u>355.6 mm</u> <u>(14 in)</u>		1179.8 mL (72 cu in)
56.6 L (2 cu ft)	<del>63.7 L</del> <del>(2.25 cu ft)</del>  <u>61.3 L</u> <u>(2.16 cu ft)</u>	304.8 mm (12 in)	304.8 mm (12 in)	<del>685.8 mm</del> <del>(27 in)</del>  <u>660.4 mm</u> <u>(26 in)</u>		

		406.4 mm (16 in)	228.6 mm (9 in)	<del>685.8 mm (27 in)</del> <u>660.4 mm (26 in)</u>		
84.9 L (3 cu ft)	<del>92 L (3.25 cu ft)</del>	304.8 mm (12 in)	304.8 mm (12 in)	<del>990.6 mm (39 in)</del> <u>965.2 mm (38 in)</u>		
	<u>89.4 L (3.16 cu ft)</u>	406.4 mm (16 in)	228.6 mm (9 in)	<del>990.6 mm (39 in)</del> <u>965.2 mm (38 in)</u>		

Measures are typically constructed of 1.27 cm (1/2 in) marine plywood. **The measure must accommodate the entire contents of the package being tested, and** a transparent sidewall is useful for determining the level of fill, but must be reinforced if it is not thick enough to resist distortion. If the measure has a clear front, place the level gage at the back (inside) of the measure so that the markings are read over the top of the mulch.

#### Notes

<sup>1</sup> Other interior dimensions are acceptable if the test measure approximates the configuration of the package under test, **can accommodate the entire contents of the package at one time** and does not exceed a base configuration of the package cross-section.

<sup>2</sup> The height of the test measure **shall be 355.6 mm (14 in) for a 1 cubic foot package, 660.4 mm (26 in) for a 1.5 - 2 cubic foot package or 965.2 mm (38 in) for a 3 cubic foot package.** ~~may be reduced, but this will limit the volume of the package that can be tested.~~

<sup>3</sup> When lines are marked in boxes, they should extend to all four sides of the measure **if possible** to improve readability. It is recommended that a line indicating the MAV level also be marked to reduce the possibility of reading errors when the level of the mulch is at or near the MAV.

<sup>4</sup> The Nominal Capacity is given to identify the size of packages that can be tested in a single measurement using the dry measure with the listed dimensions. It is based on the most common package sizes of mulch in the marketplace. If the measures are built to the dimensions shown above the actual volume will be larger than the nominal volume so that plus errors (overfill) can be measured accurately.

(Amended 2010 ~~and 20XX~~)

### 3.10.2. Test Procedure

1. Follow the Section 2.3.1. "Define the Inspection Lot." Use a "Category A" sampling plan in the inspection, and select a random sample.
- ~~2. Open each package in turn. Empty the contents of the package into a test measure and level the contents by hand. Do not rock, shake, drop, rotate, or tamp the test measure. Read the horizontal marks to determine package net volume.~~
2. Note Some types of mulch are susceptible to clumping and compacting. **Take steps To** ensure that the material is loose and free flowing when placed into the test measure, **gently massage the package while rolling the bag on the ground (or flat surface) at least four full rotations (but not more than eight full rotations), without lifting or dropping the package,** before opening to reduce the clumping and compaction of the material.

**Note: Mulch products stored exposed to the elements may become saturated with moisture.**

**Excessive moisture adds weight to mulch particles and distorts the volume test results. Test samples with flowing or excessive collected moisture in the package shall be excluded from the test procedure.**

~~3. Exercise care in leveling the surface of the mulch/soil and determine the volume reading from a position that minimizes errors caused by parallax.~~

**3. Placing contents into the test measure.**

- **Open the bag, gather the bag opening to ensure that no product is lost. Place the gathered bag opening as far into the top of the measure as possible without disturbing or leaning against the measure.**
- **Release the bag opening and quickly dump the contents of the package into a test measure in a continuous flow**

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

- **Massage the outside of the bag to maintain a continuous flow of the product but not for the purpose of de-clumping the product.**
- **Using your hand, gently level the contents, being careful not to affect the compaction of the product.**

**4. Read the horizontal marks at a position level with the product and round the readings between two marked intervals up to the nearest 38.1 mm (½ in) increment to determine the package net volume.**

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

$$\text{Package Error} = \text{Package Net Volume} - \text{Labeled Volume}$$

### **3.10.3. Evaluation of Results**

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

**Note:** In accordance with Appendix A, Table 2-10. Exceptions to the Maximum Allowable Variations for Textiles, Polyethylene Sheeting and Film, Mulch and Soil Labeled by Volume, Packaged Firewood, and Packages Labeled by Count with 50 Items or Fewer, and Specific Agricultural Seeds Labeled by Count, apply an MAV of 5 % of the declared quantity to mulch and soil sold by volume. When testing mulch and soil with a net quantity in terms of volume, one package out of every 12 in the sample may exceed the 5 % MAV (e.g., one in a sample of 12 packages; two in a sample of 24 packages; four in a sample of 48 packages). However, the sample must meet the average requirement of the “Category A” Sampling Plan.

**(Amended 20XX)**

#### **Background/Discussion:**

Recent observations of test activities being conducted by industry and states indicate there are areas in the current test procedures that are not sufficiently defined to assure uniform testing practices by all parties. Council testing conducted by Dr. William Fonteno (Horticultural Substrates Lab at North Carolina State University) indicates some reported and observed variations in testing procedures that are not completely defined in NIST Handbook 133 can have an adverse impact on testing results due to the highly variable particle size distribution that is the very nature of the products.

There should be no major costs resulting from this proposal. Some manufacturers and inspectors may need updated test measures suitable for the package size being tested. All stakeholders will benefit from coordinated training by NIST and industry and test procedures uniformly applied in interstate commerce.

At the 2016 NCWM Interim Meeting it was noted that this proposal clarifies the language of the testing procedures that are currently within NIST Handbook 130. It was noted that the language in Section 1.3.1. Audit Test, that stated “Do not take enforcement action using audit test results”, should be underlined and bold in NIST Handbook 130. Since the change is not a technical correction or clarification the language was removed from the Item Under Consideration.

The Committee made the following changes

- Remove the term “statistically valid” from Section 1.2.1.

### 1.2.1. Inspection Lot

An “inspection lot” (called a “lot” in this handbook) is defined as a collection of identically labeled (except for quantity or identity in the case of random packages) packages available for inspection at one time. The collection of packages will pass or fail as a whole based on the results of tests on a statistically valid, randomly drawn sample ~~drawn from of~~ the lot. This handbook describes procedures to determine if the packages in an “inspection lot” contain the declared net quantity of contents and if the individual packages’ variations are within acceptable limits.

- Under 3.10.2. Test Procedure modified the second sentence in the note to read: Test samples with flowing or **excessive** collected moisture in the package shall be excluded from the test procedure.

With the modifications stated above the Committee is recommending this be a Voting Item.

At the 2016 NCWM Annual Meeting, Robert LaGasse (MSC) remarked that this clarifies the current test procedures in NIST HB133. Mr. Floren (LA County) remarked that he has no issue with the inspection procedure but has major concerns with Section 1.2.1. This section applies to all products in the marketplace for those reasons this portion of the proposal should be stricken. The handbook already states how a random selection is to be done. Mike Sikula (NY) opposed this item because it is difficult to pour the product into the test measure without touching. Craig VanBuren (MI) asked for the supporting data regarding the change in the test measure size. There is also suggested that the term “excessive moisture” is too subjective.

The Committee made the following changes

## 1.2. Package Requirements

### 1.2.1. Inspection Lot

An “inspection lot” (called a “lot” in this handbook) is defined as a collection of identically labeled (except for quantity or identity in the case of random packages) packages available for inspection at one time. The collection of packages will pass or fail as a whole based on the results of tests on a randomly drawn sample drawn from of the lot in accordance with Section 1.3. Sampling Plans and Section 2.3.4. Random Sample Selection. This handbook describes procedures to determine if the packages in an “inspection lot” contain the declared net quantity of contents and if the individual packages’ variations are within acceptable limits.

The Committee made a minor editorial change to the note in Section 3.10.2.3. in removing the word “touching” and replacing with the word “disturbing”

At the Voting session a motion to amend was heard from the State of Michigan. This motion was to withdraw the Table 3-4. Test Measure size until further data can be submitted on why this change is valid. The Committee removed this Item from Voting status.

- 1) Additional testing needs to be done on the use and variability of the various test vessels sizes. This data should be shared with membership in advance of any meetings.
- 2) Modify the language to state that the measurement must be made in a single pour. In stating this requirement, the specifications for the current test measurement not be changed?
- 3) Concern was voiced regarding the cost of building new test vessels. *Possible solution:* Permit the use of the current test vessels but have a note that test vessels constructed after a specific date use the new recommended chart.
- 4) The current practice and use of test measures has been used for an extended period of time, why is this change before the conference? The product has not changed, so why is there a proposal before the conference?
- 5) When there is “excessive moisture the package is not to be tested. However, because this product is stored outside it could be could be affected by the various weather climates (i.e. rain, sleet, ice, humidity, snow). In some regions once the product gets wet and then has exposure to freezing temperatures it never dries out. The term “excessive moisture” is too subjective
- 6) Replace the word “touch” with “disturb(ing)” in the test procedure has been sufficient resolution and this will appear in the Fall regional reports to get additional feedback.

### **3. Placing contents into the test measure.**

- **Open the bag, gather the bag opening to ensure that no product is lost. Place the gathered bag opening as far into the top of the measure as possible without disturbing or leaning against the measure.**
- **Release the bag opening and quickly dump the contents of the package into a test measure in a continuous flow**

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

#### **Regional Association Comments:**

WWMA received a presentation from Robert LaGasse, Executive Director of Mulch and Soil Council to discuss the proposal, which is a joint effort with NIST. The proposal does not change the procedures, but clarifies the steps which are not being interpreted in the same manner by the states and industries. Changes will promote uniformity. WWMA supports this item with amendments. Bold and underline the statement “Do not take enforcement action using audit test results” in 1.3.1. Audit Tests. This is meant to bring to the inspectors’ attention the fact that enforcement action should not be taken unless an official test has been conducted.

During the voting session, Mr. Floren (LA County) was concerned about the term “randomly drawn” as it relates to drawing a sample for items in large quantities. This term would cause challenges in conducting the inspection and facing legal challenges in civil cases. He stated that this addition would apply to all commodities and not only mulch and soils. He recommended removing the suggested addition of “randomly drawn”, bold the sentence “Do not take enforcement action using audit test results”, and approves the suggested changes for Chapter 3 Section 3.10. Mulch and Soils Labeled by Volume. WWMA forwarded the item to NCWM, recommending that it be a Voting Item as modified:

#### **1.2.1. Inspection Lot**

An “inspection lot” (called a “lot” in this handbook) is defined as a collection of identically labeled (except for quantity or identity in the case of random packages) packages available for inspection at one time. The collection of packages will pass or fail as a whole based on the results of tests on a ~~statistically valid, randomly drawn~~ sample ~~drawn from of~~ the lot **in accordance with 1.3. Sampling Plans.** This handbook describes procedures to



determine if the packages in an “inspection lot” contain the declared net quantity of contents and if the individual packages’ variations are within acceptable limits.

At the 2015 CWMA Interim Meeting a state regulator asked if this proposal would conflict with the proposal that includes a maximum allowable variation. She wants any conflict between the two proposals related to MAV’s resolved before moving forward. She recommended it not move forward as a Voting Item. The committee believed there was still potential for conflict with regard to maximum allowable variation, therefore CWMA forwarded the item to NCWM and recommended that it be a Developing Item.

At the 2015 NEWMA Interim Meeting a state regulator commented that this should continue as a Developing Item. He does not support this method as it is presented because he believes the act of sifting needs to stay in the test method. He would like to see more data in varying climates where moisture exists. Another state regulator commented that this proposal states that this product is similar to animal bedding and the procedures seem to be very different. This proposal does not allow multiple drops, and the animal bedding procedure does allow for multiple drops. He believes this is inconsistent and should be reevaluated. Another regulator agrees it should remain as a Developing Item waiting for further data from various climates. NEWMA forwarded the item to NCWM, recommending that it be a Developing Item.

At the 2015 SWMA Annual Meeting, Robert Lagasse (Mulch and Soil Council) spoke in support of this proposal. The SWMA proposes adding the word “excessive” into Section 3.10.2. Test Procedure, Step 2. With this change, SWMA forwarded the item to NCWM, stating that it is fully developed and recommended that it be a Voting Item.

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

At the 2016 NEWMA Annual Meeting, Robert LaGasse (Mulch and Soil Council) remarked that the modifications provide clarification to the language in NIST HB133 and makes the language consistent with existing training practices. A state W&M official from NY commented that he is not sure there is a need for the language “randomly drawn” in the introductory paragraph, since this is already covered in the testing procedures. A NIST technical advisor commented that the phrase was added in this introductory section for clarification. A state W&M official from Connecticut asked if there had been any further study on these procedures. The NIST Technical Advisor commented there had been a great deal of testing, and NIST would be interested in hearing feedback from inspectors using this method in the field. The regulator further commented he had concern with the term “dumping quickly.” Mr. LaGasse commented the important step was to massage and roll the package as indicated in the testing methods in order to break up the material. The NY state official opposed this item because the procedure is too detailed and too constraining to be used in practice. The NIST Technical Advisor commented that inspectors were tapping, knocking and rocking the measure during training, and these procedures are meant to address that practice. Mr. LaGasse indicated that the testing method has always included guidance for no rocking, tapping, or knocking for twenty years. The NY state official commented that the new language calls for no touching the measure, and that is too restrictive. NEWMA considers this item to be fully developed and should remain as a Voting.

At the 2016 CWMA Annual Meeting, Robert LaGasse (Mulch and Soil Council {MSC}) commented that this is a joint proposal between MSC and NIST/OWM to clarify procedures in HB133 for checking package content of mulch. This proposal updates procedures for containers in the testing protocol. These procedures have been developed from the NIST training sessions, so that industry and states can both reference the same materials, if training is unavailable. The industry supports the proposal as a Voting item. The L&R Chairman commented that the Conference received a letter from Prof. Michael (College of Agricultural Sciences and Engineering at the Pennsylvania State University) that stated they did not support all of the proposed changes. The submitter is concerned the new procedures will result in more issues rather than fewer issues. The Chair commented that NIST has reached out to the individual to clarify the specific concerns. The Committee felt that the proposal should move forward as a Voting Item. The expectation is that NIST will continue communication with Dr. Michael, and he will have the opportunity to attend the annual meeting to present his concerns.

**CWMA 2016 Report:**

<b>Item 2600-1</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
No comments.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>
The committee is unclear whether this item is fully developed, based on comments heard at the 2016 NCWM Annual Meeting.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>
<b>Regional recommendation to NCWM for item status:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> ) <input type="checkbox"/> Unable to consider at this time ( <i>Provide explanation in the "Additional Comments" section below</i> )
<b>Regional Report to NCWM:</b>
The committee is unclear whether this item is fully developed, based on comments heard at the 2016 NCWM Annual Meeting.

Additional letters, presentations and data may have been part of the committee’s consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

**2600-2 D 1.2.3. Individual Package Requirement**

**Source:**

Ventura County, California (2016)

**Purpose:**

Improve efficiency in the time and resources to conduct inspections where it is determined early in the testing that the lot is going to fail.

**Item under Consideration:**

Amend NIST Handbook 133 as follows:

**1.2.3. Individual Package Requirement**

The variation of individual packages contents from the labeled quantity must not be “unreasonably large”. In this handbook, packages that are under filled by more than the Maximum Allowable Variation (MAV) specified for the package **labeled net quantity statement** are considered unreasonable **minus errors (UME)**. Unreasonable shortages are not generally permitted, even when averages in other packages in the *same* lot,

shipment, or delivery compensate for such shortages. **If during an official package inspection using “Category A” or Category B” sampling plan, the number of packages whose net values exceed the number of negative MAV’s permitted for the sample size, then the lot fails and testing may be considered complete for the purpose of removing the lot from sell in its current condition. Completion of the official package inspection sampling plan for each lot is needed for further enforcement actions. This handbook does not specify limits of overfilling (with the exception of textiles), which is usually controlled by the packer for economic, compliance, and other reasons.**

(Amended 2010 **and 20XX**)

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

Angela Godwin  
Ventura County Sealer of Weights and Measures  
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angela.godwin@ventura.org

### **Background/Discussion:**

Current procedures in NIST Handbook 133 require inspectors to test all products in a sample before determining compliance of a lot; e.g. Peat Moss section 3.9. If one follows the test procedure in section 3.9.2.2. (“Open each package in turn, ...”), every package must be opened and its error determined before the results can be evaluated. Section 3.9.3. Evaluation of Results, then refers the inspector to Section 2.3.7. where unreasonable minus errors (UMEs) are considered. Every test procedure in the Handbook has the same requirement. If an inspector determines that a number of packages errors exceed the UMEs allowed before completing testing of all the packages in the sample, there is no provision to allow the inspector to reject the lot. All the packages have to be tested. The submitter has tested peat moss where the first two packages had UMEs. This exceeded the number allowed in the sample and would, in the final analysis, have resulted in the rejection of the lot. Yet following the requirement of section 3.9.2.2. the rest of the sample had to be tested, for a product that should have been rejected after the test of the first two packages. Requiring testing of the whole sample before determining the number of packages errors exceeding the number of UME’s allowed is costly in time and resources. It would be far better to allow an inspector to reject a lot when early in the testing there are obvious multiple unreasonable minus errors that exceed the number allowed. This would shorten the overall testing time for products requiring extensive time to determine errors and still result in the same determination of compliance.

There are several products that require destructive testing and excessive testing times, sometimes 15 or 20 minutes for each sample (e.g. peat moss, mulch and soils, ice cream novelties, paint, compressed gas in cylinders). Requiring the testing of all packages in a sample for those products which require extensive and time consuming testing when it is apparent that the lot fail because of an excess of UME’s, is an unnecessary waste of time and resources. Permitting rejection of a lot before all samples have been tested would eliminate an unnecessary and arduous procedure and provide an efficient resolution to the sampling of difficult to test products.

At the 2015 NCWM Annual Meeting during a discussion on the testing of peat moss, a NIST Technical Advisor stated the intent of the Handbook was to allow the failure of a lot immediately on discovering excessive UME’s and that this was taught in Handbook 133 classes. Although this may be what the authors of Handbook 133 intended, unless it is made clear through specific language, it is very possible that such action by an inspector could face a legal challenge.

It is realized that proposal option 1.) affects many different sections of the Handbook 133 and therefore cannot address every specific section. If this proposal is supported by one or more of the regional weights and measures associations and forwarded to the L&R Committee, it will be up to the Committee and NIST Technical Advisors to identify and correct the language in each test procedure within the Handbook.

At the 2016 NCWM Interim Meeting there was not a fully developed proposal for the Committee to consider. The Committee believes this item has merit and returns it to the submitter to develop a proposal. The Committee is recommending this as a Developing Item.

Initial language submitted:

Amend NIST Handbook 133 as follows:

Option 1.)

Amend each test procedure in Handbook 133, indicated in 14 above, to make it permissive to allow the rejection of a lot if it is obvious that the number of UMEs exceeds the number allowed before all samples in the lot have been tested.

For each test procedure add the phrase “If an inspector at any time during testing packages determines the number of unreasonable minus errors exceeds the number allowed, the inspector may fail the lot without further testing and will not need to follow the requirements of Section 2.3.7. Evaluation for Compliance.”

Option 2.)

Make one “general” statement up front in Chapter 1, in sections 1.2.3 and/or 1.2.4 and/or or Chapter 2, 2.3.7.1. where it talks about the Individual Package Requirement and MAV.

The general statement or explanation should say something along the lines that “nothing in Handbook 133 or the test procedures are to be interpreted that an inspector must continue testing all samples when the number of MAV’s allowed are exceeded. Once the MAV’s allowed are exceeded the lot fails and can be immediately rejected. It is no long necessary (required) to continue testing the remainder of the samples. Reference to statements such as “every package must be opened and its error determined before the results can be evaluated” does not apply in cases where the number of allowed MAV’s is exceeded”.

At the 2016 NCWM Annual Meeting the submitter of the proposal provided the Committee with developed language. The Committee accepted the language and looks forward to receiving feedback from the Fall Regional Meetings.

**Regional Association Comments:**

At the WWMA Annual Meeting a NIST Technical Advisor remarked that when regulators can remove an inspection lot from sale for MAVs, without completing the test as noted in NIST Handbook 133, Chapter 4. however, it is only listed under this one test procedure. The WWMA recommends Option 2, one “general” statement in Chapter 1, sections 1.2.3 and/or 1.2.4 and/or or Chapter 2, 2.3.7.1, making a statement about the “Individual Package Requirement” and “MAV.” No specific language was suggested to the NCWM L&R Committee. WWMA forwarded the item to NCWM, recommending that it be a Voting Item.

At the 2015 CWMA Interim Meeting, a state regulator believes that this item is fully developed and ready for voting status. Other state regulators agreed this is a common sense protocol that needs to be stated. A state regulator says he has already adopted this practice. The only issue to further consider is determining fines on MAV’s where appropriate, but states will make that determination. CWMA forwarded the item to NCWM and recommended that it be a Voting Item.

At the 2015 NEWMA Annual Meeting they heard from a retired state regulator that this process has always been an option and the region does not believe this proposal is necessary. NEWMA did not forward it to NCWM.

At the 2015 SWMA Annual Meeting it was noted that there was no specific proposed language. The SWMA believes that this concept has merit but would like to see a specific proposal. The SWMA forwards this to the NCWM recommending this as a Developing Item.

**CWMA 2016 Report:**

Item 2600-2
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
A state regulator from Kansas commented that this item could inadvertently create inefficiency if the testing fails the entire lot before any destructive sampling is undertaken. In cases where litigation requires package inspection, a partial or full test may still be necessary. A second state regulator from Kansas indicated that he believed that in

federal language there is a provision that you cannot take action from an audit inspection or gross weights. The group agreed this issue needs further development and input.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b> <input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b> The committee feels the testimony in open hearings revealed there were still questions and uncertainty regarding this proposal. If the goal is to increase efficiency, the language should include the provision to stop testing after exceeding the maximum allowable variation (MAV) to minimize destructive testing. The wording is not clear in the current proposal.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>
<b>Regional recommendation to NCWM for item status:</b> <input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> ) <input type="checkbox"/> Unable to consider at this time ( <i>Provide explanation in the "Additional Comments" section below</i> )
<b>Regional Report to NCWM:</b> A regulator commented that this item could inadvertently create inefficiency if the testing fails the entire lot before any destructive sampling is undertaken. In cases where litigation requires package inspection, a partial or full test may still be necessary. A second state regulator indicated that he believed that in federal language there is a provision that you cannot take action from an audit inspection or gross weights. The group agreed this issue needs further development and input.

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

## 2600-3 D Recognize the Use of Digital Density Meters

### Source:

Missouri (2016)

### Purpose:

Allow the use of digital density meters for package checking testing of viscous fluids such as motor oils, diesel exhaust fluid (DEF) and antifreeze.

### Item under Consideration:

Amend NIST Handbook 133 as follows:

Develop specific test procedures for NIST Handbook 133, "Chapter 3. Test Procedures – For Packages Labeled by Volume" that would recognize the use of digital density meters in lieu of volumetric flasks and thermometers when testing certain viscous fluids such as motor oil, DEF, antifreeze, syrups, etc.

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

Ronald Hayes  
 Missouri Department of Agriculture  
 573-751-4316  
 ron.hayes@mda.mo.gov

**Background/Discussion:**

Current test procedures are slow and awkward due to the need of using borosilicate glassware for package checking. Digital density meters are fast, use small samples size (2 ml) and have built in thermometers.

Digital density meters are fast and accurate in comparison with recognized Handbook 133 test procedures for viscous fluids. Using digital density meters equipped with built-in API density tables will not require the cooling samples to 60 °F. There is no need to “wet down” volumetric flasks before each measurement. Most non-food products may be recovered without contamination. Only a small sample size (2 ml) of the product is needed for testing. There is no need for a partial immersion thermometer or volumetric flasks. The current method in “Section 3.4. Volumetric Test Procedures for Viscous Fluids – Headspace” does not work for plastic oblong bottles often used for motor oil. This new test procedure would eliminate the entrapment of air in testing viscous fluids (i.e. motor oil, DEF, antifreeze, syrups, etc.) Well established ASTM and other international standard test methods are available with precision statements.

At the 2016 NCWM Interim Meeting, Ron Hayes (Missouri) spoke in regards to his submittal of this proposal. The Committee believes this item has merit and requested that the submitter form an informal task group to further develop. Mr. Hayes agreed that this item needs have additional data gathered to support the use and accuracy of the digital density meters. The American Petroleum Institute (API) remarked that they would like to assist the task group on this project. The Committee is making this a Developing Item.

**Regional Association Comments:**

At the 2015 CWMA Interim Meeting, Mr. Ron Hayes (submitter) remarked that this proposal was submitted for both NIST Handbook 133 and NIST Handbook 44 and would streamline the process of volume measurement. Using one of several commercially available densitometers would eliminate the cost of extra work and time to wet and clean the flask for each measurement. It also eliminates cost due to breakage. This would be an alternative to the refereed method for volume measurement. An industry representative asked about products that did not have consistent density throughout such as hair conditioner. Mr. Hayes commented all products may not work with this alternate method, but many would. Mr. Hayes recommended this be considered as a Developing Item. CWMA forwarded the item to NCWM and recommended that it be a Developing Item to allow other regions an opportunity to comment.

At the 2015 SWMA Annual Meeting, a state official spoke in support of this item. The SWMA believes this item is fully developed and forwarded it to NCWM, recommending that it be a Voting Item.

**CWMA 2016 Report:**

<b>Item 2600-3</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
No comments.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>

This item continues to be developed by the submitter.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: <i>(If different than regional committee recommendation)</i></b>
<b>Regional recommendation to NCWM for item status:</b> <input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda <i>(In the case of new items, do not forward to NCWM)</i> <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda <i>(To be developed by source)</i> <input type="checkbox"/> Unable to consider at this time <i>(Provide explanation in the "Additional Comments" section below)</i>
<b>Regional Report to NCWM:</b> Please provide your report in this section exactly how you want it to appear in the NCWM reports to represent your region's considerations, support or opposition, and recommendations. <b>This will replace any previous reports from your region on this item.</b>
This item continues to be developed by the submitter.

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

**New-6**      **4.5 Polyethylene Sheeting, Bags and Liners**

**Source:**  
California (2017)

**Purpose:**  
Add procedures to NIST Handbook 133 for testing polyethylene bags and liners, including bags with a cut out (T-shirt bags).

**Item under Consideration:**  
Amend NIST Handbook 133 as follows:

Develop specific test procedures for NIST Handbook 133, "Chapter 3. Test Procedures – For Packages Labeled by Volume" that would recognize the use of digital density meters in lieu of volumetric flasks and thermometers when testing certain viscous fluids such as motor oil, DEF, antifreeze, syrups, etc.

**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.

**4.5.1.      Test Equipment**

- A scale that meets the requirements in Section 2.2. "Measurement Standards and Test Equipment."
- Steel tapes and rules. Determine measurements of length to the nearest division of the appropriate tape or rule.

➤ Metric units:

For labeled dimensions 400 mm or less, linear measure: 300 mm in length, 1 mm divisions; or a 1 m rule 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 rule 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.

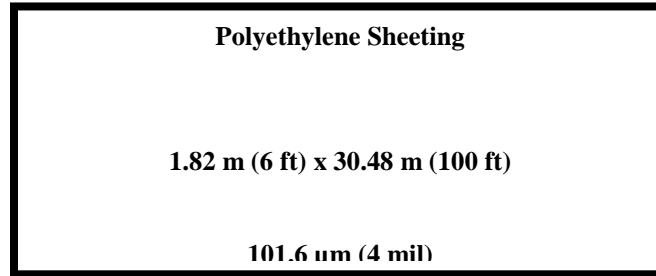
- Deadweight dial micrometer (or equal) equipped with a flat anvil, 6.35 mm or ( $\frac{1}{4}$  in) diameter or larger, and a 4.75 mm ( $\frac{3}{16}$  in) diameter flat surface on the head of the spindle. The anvil and spindle head surfaces should be ground and lapped, parallel to within 0.002 mm (0.0001 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 0.0012 mm (0.00005 in) at zero. The mass of the probe head (total of anvil, weight 102 g or [3.6 oz], spindle, etc.) must be 113.4 g (4 oz). The micrometer should be operated in an atmosphere free from drafts and fluctuating temperature and should be stabilized at ambient room temperature before use.
- Gage blocks covering the range of thicknesses to be tested should be used to check the accuracy of the micrometer
- T-square

#### 4.5.2. Test Procedures

##### a. Test Procedure for Polyethylene Sheeting

1. Follow Section 2.3.1. "Define the Inspection Lot." Use a "Category A" sampling plan in the inspection; select a random sample.
2. Be sure the product is not mislabeled. Check the label declaration to confirm that all of the declared dimensions are consistent with the required standards. The declaration on sheeting, film, and bags shall be equal to or greater than the weight calculated by using the formulas below. If the product weighs less than 100 lb, calculate ~~Calculate~~ the final value to four digits and declare to three digits dropping the final digit (e.g., if the calculated value is 2.078 lb, then the declared net weight is truncated to 2.07 lb). For products weighing more than 100 lb, truncate to a whole number (e.g., if the calculated value is 207.8 lb, then the declared net weight is truncated to 207 lb, and if the calculated value is 1568.7 lb, then the declared net weight is truncated to 1568 lb).



**Example:****Label –**

3. Use the following formulas to compute a target net weight. The labeled weight should equal or exceed the target net weight or the package is not in compliance.
- For SI (metric) Dimensions:

$$\text{Target Mass in Kilograms} = (T \times A \times D) \div 1\,000$$

Where:  $T$  = nominal thickness in centimeters

$A$  = nominal length in centimeters  $\times$  nominal width (the nominal width for bags is twice the labeled width) in centimeters

$D$  = minimum density in grams per cubic centimeter\*

**Note:** Check label for density declaration and type of polyethylene. Refer to Box \* for density (D) value if not declared.

\*Determined by the latest versions of ASTM Standard D1505, "Standard Method of Test for Density of Plastics by the Density-Gradient Technique" and ASTM Standard D883, "Standard Terminology Relating to Plastics."

For the purpose of this regulation, the minimum density (D) for linear low density polyethylene plastics (LLDPE) shall be 0.92 g/cm<sup>3</sup> (when D is not known).

For the purpose of this regulation, the minimum density (D) for linear medium density polyethylene plastics (LMDPE) shall be 0.93 g/cm<sup>3</sup> (when D is not known).

For the purpose of this regulation, the minimum density (D) for high density polyethylene plastics (HDPE) shall be 0.94 g/cm<sup>3</sup> (when D is not known).

- For U.S. Customary Dimensions:

$$\text{Target Weight in Pounds} = T \times A \times D \times 0.03613$$

Where:  $T$  = nominal thickness in inches;

$A$  = nominal area; that is the nominal length in inches  $\times$  nominal width (the nominal width for bags is twice the labeled width) in inches;

$D$  = minimum density in grams per cubic centimeter; 0.03613 is a factor for converting  $\text{g}/\text{cm}^3$  to  $\text{lb}/\text{in}^3$ .

4. Perform the calculations as shown in the following example. If the product complies with the label declaration, go to Step 5.

**Example:**

- For metric units:

$$(0.01016 \text{ cm} \times [(1.82 \text{ m} \times 100 \text{ cm/m}) \times (30.48 \text{ m} \times 100 \text{ cm/m})] \times 0.92 \text{ g/cm}^3) \div 1000 \text{ g/kg}$$

$$= \text{a target weight of } 5.18 \text{ kg}$$

*In this example, the labeled net mass of 5.03 kg does not meet the target net mass, so the product is not in compliance.*

- For U.S. customary units:

$$(0.004 \text{ in}) \times [(6 \text{ ft} \times 12 \text{ in/ft}) \times (100 \text{ ft} \times 12 \text{ in/ft})] \times 0.92 \text{ g/cm}^3 \times 0.03613$$

$$= \text{a target weight of } 11.48 \text{ lb}$$

*In this example, the labeled net weight of 11.1 lb does not meet the target net weight, so the product is not in compliance.*

5. Select packages for tare samples according to Section 2.3.5.1. "Determination of Tare Sample and Average Tare Weight."
6. Determine and record the gross weights of the initial tare sample.
7. Extend the product in the sample packages to their full dimensions and remove by hand all creases and folds.
8. Measure the length and width of the product to the closest 3 mm ( $1/8$  in). Make all measurements at intervals uniformly distributed along the length and width of the sample and record the results. Compute the average length and width, and record.
  - With rolls of product, measure the length of the roll at three points along the width of each roll and measure the width at a minimum of 10 points along the length of each roll.

- For folded products, such as drop cloths or tarpaulins, make three length measurements along the width of the sample and three width measurements along the length of the sample.
9. Determine and record the average tare weight according to Section 2.3.5.1. “Determination of Tare Sample and Average Tare Weight”.
  10. Follow the procedures in Section 2.3.7. “Evaluate for Compliance” to determine the lot conformance requirements for length, width, and weight.
  11. If the sample failed to meet the package requirements for any of these declarations, no further measurements are necessary. The lot fails to conform.

**Note:** If the sample meets the package requirements for the declarations of length, width, and weight proceed to Step 12 to verifying the thickness declaration.

12. Measure the thickness of the plastic sheet with a micrometer using the following guide. Place the micrometer on a solid level surface. If the dial does not read zero with nothing between the anvil and the spindle head, set it at zero. Raise and lower the spindle head or probe several times; it should indicate zero each time. If it does not, find and correct the cause before proceeding.
13. Take measurements at five uniformly distributed locations across the width at each end and five locations along each side of each roll in the sample. If this is not possible, take measurements at five uniformly distributed locations across the width of the product for each package in the sample.
14. When measuring the thickness, place the sample between the micrometer surfaces and lower the spindle head or probe near, but outside, the area where the measurement will be made. Raise the spindle head or probe a distance of 0.008 mm to 0.01 mm (0.000 3 in to 0.000 4 in) and move the sheet to the measurement position. Drop the spindle head onto the test area of the sheet.
15. Read the dial thickness two seconds or more after the drop, or when the dial hand or digital readout becomes stationary. This procedure minimizes small errors that may occur when the spindle head or probe is lowered slowly onto the test area.
16. For succeeding measurements, raise the spindle head 0.008 mm to 0.01 mm (0.000 3 in to 0.000 4 in) above the rest position on the test surface, move to the next measurement location, and drop the spindle head onto the test area. Do not raise the spindle head more than 0.01 mm (0.000 4 in) above its rest position on the test area. Take measurements at least 6 mm (¼ in) or more from the edge of the sheet.
17. Repeat Steps 12 through 16 above on the remaining packages in the sample and record all thickness measurements. Compute and record the average thickness for the individual package and apply the following MAV requirements.

(Amended 2012, 20XX)

#### **b. Test Procedure for Polyethylene Bags and Liners**

1. Follow Section 2.3.1. “Define the Inspection Lot.” Use a “Category A” sampling plan in the inspection; select a random sample.
2. Follow steps as for polyethylene sheeting. However, multiply the area by two in order to account for both sides of the bag or liner.

3. To determine the theoretical weight for bags with a cut out, i.e., T-shirt or specialty bags, subtract from the theoretical weight the percentage of the total area of the cut out. Use the following method to calculate the area of the cut out:
  - a. Trace the cut out on ruled graph paper (no less than four squares per inch) as shown in the diagram that follows.
  - b. For T-shirt bags with a fold, you may need to draw an extra line to account for additional plastic layers (see orange shaded area in Figure 1).

Figure 1.

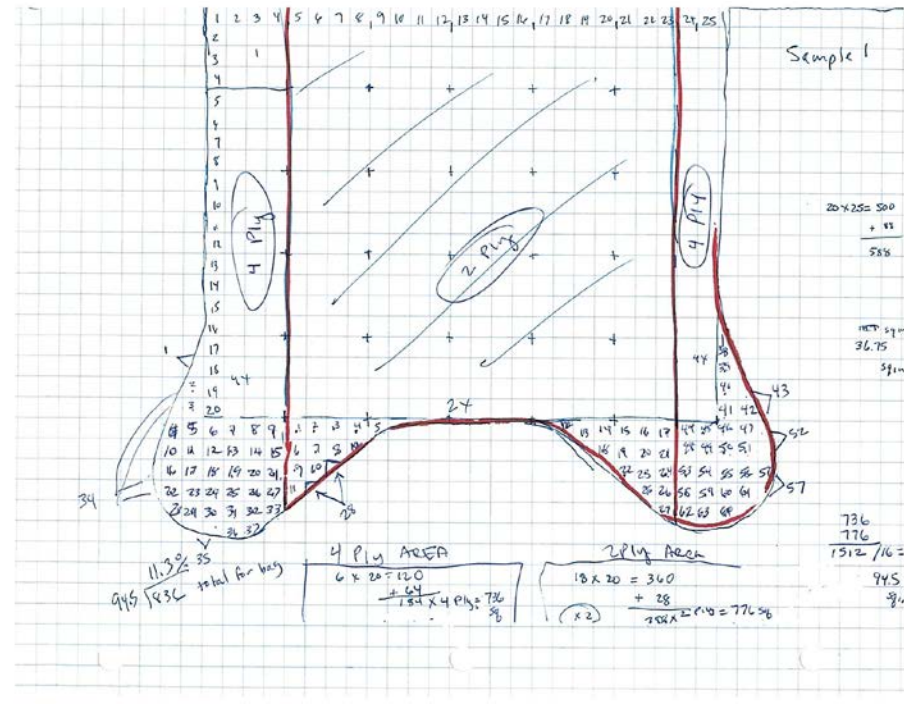


- c. Count the squares to find the area of the cut out (see Figure 2).
- d. Once you have counted all squares, divide by the number of squares per square inch (sq in) to determine the total area. For example, ruled graph paper with 4 squares per inch would have 16 squares per sq in.
- e. Once the total area has been determined, take the total area of the cut out and divide it by the total area of the bag to calculate the percentage of the cut out.

Example: The total area of the plastic T-shirt bag is 836 sq in. The area of the cut out is calculated to be 94.5 sq in. The percentage of the cut out for the bag is 11.3%:

$$94.5 \text{ sq in} \div 836 \text{ sq in} = 0.1130 \times 100$$

Figure 2.



- f. Compute and record the weight by subtracting the calculated theoretical weight of the cut out from the total net weight of the bags being tested

(Amended 20XX)

### 4.5.3. Evaluation of Results

**Note:** Refer to Appendix A, Table 2-10. Exceptions to the MAVs for Textiles, Polyethylene Sheeting and Film, Mulch and Soil Labeled by Volume, Packaged Firewood, and Packages Labeled by Count with 50 Items or Fewer, and Specific Agricultural Seeds Labeled by Count.

#### a. Thickness

##### 1. Individual Thickness

- On polyethylene with a declared thickness greater than 25  $\mu\text{m}$  (1 mil or 0.001 in): an individual thickness measured may be up to 20 % less than the declared thickness.
- On polyethylene with labeled thickness less than or equal to 25  $\mu\text{m}$  (1 mil or 0.001 in), individual thickness measurements may be up to 35 % below the labeled thickness.

Count the number of values that are smaller than specified MAVs ( $0.8 \times$  labeled thickness if 25  $\mu\text{m}$  [1 mil] or greater or  $0.65 \times$  labeled thickness, if less than 25  $\mu\text{m}$  [1 mil]). If the number of values that fail to meet the thickness requirement exceeds the number of MAVs permitted for the sample size, the lot fails to conform to requirements. No further testing of the lot is necessary. If the number of MAVs for thickness measurements is less than or equal to the number permitted for the sample size, go on to Evaluation of Results – Average Thickness.

**2. Average Thickness**

The average thickness for any single package should be at least 96 % of the labeled thickness. This is an MAV of 4 % (refer to Appendix A, Table 2-10. Exceptions to the MAVs for Textiles, Polyethylene Sheeting and Film, Mulch and Soil Labeled by Volume, Packaged Firewood, and Packages Labeled by Count with 50 Items or Fewer, and Specific Agricultural Seeds Labeled by Count.) Circle and count the number of package average thickness values that are smaller than  $0.96 \times$  labeled thickness. If the number of package average thicknesses circled exceeds the number of MAVs permitted for the sample size, the lot fails to conform to requirements. No further testing of the lot is necessary. If the number of MAVs for package average thickness is less than or equal to the number of MAVs permitted for the sample size, proceed to Section 2.3.7. “Evaluate for Compliance” to determine if the lot meets the package requirements for average thickness.

**b. Average Weight**

The average weight for any single package should be at least 96 % of the labeled weight. This is an MAV of 4 % (refer to Appendix A, Table 2-10. Exceptions to the MAVs for Textiles, Polyethylene Sheeting and Film, Mulch and Soil Labeled by Volume, Packaged Firewood, and Packages Labeled by Count with 50 Items or Fewer, and Specific Agricultural Seeds Labeled by Count.) Circle and count the number of package average weight values that are smaller than  $0.96 \times$  labeled weight. If the number of package average weights circled exceeds the number of MAVs permitted for the sample size, the lot fails to conform to requirements. No further testing of the lot is necessary. If the number of MAVs for package average weight is less than or equal to the number of MAVs permitted for the sample size, proceed to Section 2.3.7. “Evaluate for Compliance” to determine if the lot meets the package requirements for average weight.

(Amended 2010 ~~and 20XX~~)

**Background/Discussion:**

The most efficient means for testing polyethylene bags is by weight. Polyethylene bags that include a cut out (T-shirt bags) are especially problematic because there is not currently a method to determine the amount of cut out material.

**CWMA 2016 Report:**

<b>Item New-6</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
The CWMA L&R Committee opted to not consider the new proposals that were submitted after the deadline.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>
The committee did not consider.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>

**Regional recommendation to NCWM for item status:**

- Voting Item on the NCWM Agenda
- Information Item on the NCWM Agenda
- Withdraw the Item from the NCWM Agenda (*In the case of new items, do not forward to NCWM*)
- Developing Item on the NCWM Agenda (*To be developed by source*)
- Unable to consider at this time (*Provide explanation in the "Additional Comments" section below*)

**Regional Report to NCWM:**

Please provide your report in this section exactly how you want it to appear in the NCWM reports to represent your region's considerations, support or opposition, and recommendations. **This will replace any previous reports from your region on this item.**

Due to the late submission of revisions, the committee did not have time to review all the proposals for this item, so did not consider it.

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

**2700 OTHER ITEMS****2700-1 D Fuels and Lubricants Subcommittee****Source:**

The Fuels and Lubricants Subcommittee (2007)

**Purpose:**

Update the Uniform Engine Fuels, Petroleum Products, and Automotive Lubricants Regulation in NIST Handbook 130 including major revisions to fuel ethanol specifications. Another task will be to update the Basic Engine and Fuels, Petroleum Products, and Lubricants Laboratory Publication.

**Item under Consideration:**

This item is under development. All comments should be directed to Dr. Matthew Curran, FALS Chair at (850) 921-1570, [Matthew.Curran@freshfromflorida.com](mailto:Matthew.Curran@freshfromflorida.com), or Ms. Lisa Warfield, NIST Technical Advisor at (301) 975-3308, [lisa.warfield@nist.gov](mailto:lisa.warfield@nist.gov).

This item is to provide a report on the activities of the Fuels and Lubricants Subcommittee which reports and provides recommendations to the Laws and Regulations Committee. For more information or to provide comment, please contact:

Dr. Matthew Curran, Chairman of the Fuels and Lubricants Subcommittee  
 Florida Department of Agriculture and Consumer Services  
 850-921-1570  
[matthew.curran@freshfromflorida.com](mailto:matthew.curran@freshfromflorida.com)

**Background/Discussion:**

The Subcommittee met on Sunday, January 10, 2016, at the NCWM Interim Meeting in San Diego, CA to review a number of significant issues related to fuel and motor vehicle fluid standards appearing before the L&R Committee. The meeting began with an update from an agenda review teleconference, which was held on Tuesday, December 15, 2015. There were six items on the L&R agenda with one additional related item in the Method of Sale Section that were discussed by FALS. The meeting also consisted of updates from the three informal focus groups (FG) working within FALS. Summaries are detailed below. Finally, a fourth informal focus group was formed within

FALS during the Sunday meeting to investigate L&R Item 237-5 relating to minimum requirements for water in fuel storage tanks.

**Handbook 130 Harmonization I\FG:** Ms. Marilyn Herman delivered an update to the FALS membership. She noted that the FG has held several teleconferences and met at the 2015 NCWM Annual Meeting as well as at the ASTM International Meeting in Austin, TX in December 2015 to gather input and suggestions. The FG has developed several drafts and has posted them on the NCWM collaboration site for all to review and comment. She encouraged members to continue to review the document and provide comment. While significant progress has been made, she noted that the project is going to take time due to the magnitude of possible changes to the Handbook as well as how to address the recently released Federal Trade Commission final rule pertaining to labeling requirements for ethanol blended fuels.

**Renewable Diesel Labeling and Definitions FG:** Ms. Rebecca Richardson delivered an update to the FALS membership. She noted that they had held several teleconferences and exchanged e-mails and were still trying to determine what course of action, if any, should be recommended through FALS in regards to the FTC labeling requirements for renewable diesel fuels.

**CNG/LNG Equivalent Values FG:** Mr. Jeff Clarke delivered an update to the FALS membership. He reported that the FG had met several times via teleconference and has developed a draft document detailing the results of research on energy content values. Mr. Clarke gave a Power Point presentation highlighting the current proposed values and how they were derived; more recent data concerning natural gas energy content and data on diesel energy content as provided by the Auto Alliance. The FG research document is still in draft form and needs to be finalized so that it can be submitted as a finalized document to FALS. As a result, the FG did not have any recommendations to bring to FALS at this time.

**Organometallics Task Group:** There was no update provided by the task group to FALS at the January 2016 meeting, but a ballot is moving its way through ASTM International that if passed would set a limit of 25 mg/L Mn for certain vehicle markets. The ballot has already passed through Subcommittee A will soon be brought to the D02 Main Committee for a vote. At the 2016 NCWM FALS meeting Randy Jennings (TG Chair) remarked that the TG will disband and is requesting that NCWM continue to post the work of the TG on their website.

**CWMA 2016 Report:**

<b>Item 2700-1</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
Prentiss Searles, API gave an update on the 1-year extension for the one-pound waiver for gasoline volatility. He said that most states had granted an extension, and API is working on the remaining states. He also commented that work on this issue continues at ASTM after the latest ballot did not pass in June, 2016.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>



<p><b>Regional recommendation to NCWM for item status:</b></p> <p><input type="checkbox"/> Voting Item on the NCWM Agenda</p> <p><input type="checkbox"/> Information Item on the NCWM Agenda</p> <p><input type="checkbox"/> Withdraw the Item from the NCWM Agenda (<i>In the case of new items, do not forward to NCWM</i>)</p> <p><input type="checkbox"/> Developing Item on the NCWM Agenda (<i>To be developed by source</i>)</p> <p><input type="checkbox"/> Unable to consider at this time (<i>Provide explanation in the "Additional Comments" section below</i>)</p>
<p><b>Regional Report to NCWM:</b></p> <p>No report to NCWM.</p>

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

## 2700-2 D Packaging and Labeling Subcommittee

### Source:

Packaging and Labeling Subcommittee (2011)

### Purpose:

Provide an update of the activities of this Subcommittee which reports to the L&R Committee. The mission of PALS is to assist the L&R Committee in the development of agenda items 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 Chairperson and eight voting members.

### Item under Consideration:

This item is under development. All comments should be directed to Mr. Chris Guay, Packaging and Labeling Subcommittee Chair at (513) 983-0530, [guay.cb@pg.com](mailto:guay.cb@pg.com) or Mr. David Sefcik, NIST Technical Advisor at (301) 975-4868, [david.sefcik@nist.gov](mailto:david.sefcik@nist.gov).

This item is to provide a report on the activities of the Packaging and Labeling Subcommittee which reports and provides recommendations to the Laws and Regulations Committee. For more information or to provide comment, please contact:

Chris Guay, Chairman of the Packaging and Labeling Subcommittee  
 Procter and Gamble Co.  
 513-983-0530  
[guay.cb@pg.com](mailto:guay.cb@pg.com)

### Background/Discussion:

The Package and Labeling Subcommittee (PALS) comprised of four voting regulatory officials (one from each region) and four voting from industry (retailers and manufacturers) in addition to its Chairman and NIST Technical Advisor. Mr. Guay, PALS Chair, reported that work is currently being held through monthly webinar meetings and at the NCWM meetings. Members of NCWM can participate in the PALS webinar meetings by contacting Mr. Guay. PALS members are responsible for providing updates at their Regional Meetings. Mr. Guay added that PALS will be developing proposals and providing guidance and recommendations on existing proposals as assigned by the NCWM L&R Committee. He also stressed the importance of having key federal agencies (FDA, FTC, and USDA) participating.

Mr. Guay reported the Subcommittee is working on a Recommended Practice Document for quantity expressions appearing on the principal display panel (PDP) in addition to the statement of net quantity and in addition is considering further development of the following items:

- **Additional Net Content Declarations on the Principal Display Panel** - Package net contents are most commonly determined by the product form, for example – solid products are labeled by weight and liquid products are labeled by volume. Semi-solid products such as pastes, creams and viscous liquids are required to be labeled by weight in the United States and by volume in Canada.
- **Icons in Lieu of Words in Packaged labeled by Count** – Can a clear and non-misleading icon take the place of the word “count” or “item name” in a net content statement? While existing Federal regulation requires regulatory label information to be in “English,” the increasing presence of multilingual labels and the growing diversity of the U.S. population suggest more consumers are served with a clear and non-misleading icon.
- **Multilingual Labels**
- **Multipacks and Bundle Packages** - The net content statements for multipacks and bundled packages of individually labeled products can be different based on the approach used to calculate them. The difference is the result of the degree of rounding for dual inch-pound and metric declarations. Using two apparently valid but different methods can yield one net content statement result, that provide better accuracy between the metric and inch-pound declarations and a different net content result which is consumer friendly.

At the 2015 NCWM Interim Meeting Mr. Guay (PALS Chair) reported that PALS was making progress on a Recommended Practice Document for quantity-related statements appearing the package net content statement outside of the required statement of net quantity. He noted that no guidance or regulation exists for these types of statements and as a result, every manufacturer creates their own approach. A Recommended Practice Document is expected to help bring uniformity and consistency by providing a reference for these types of label statements. This document will either be a stand-alone document on the NCWM website or included as part of another NCWM publication.

At the 2015 NCWM Annual Meeting Mr. Guay (PALS Chair) reported that FTC has recommended adoption of five amendment recommended by PALS into their final FPLA regulations. FTC also responded to each recommendation made by PALS. FTC did not propose adoption of amendments from any other source.

Mr. Guay (PALS Chair) and Angela Godwin (Ventura County, CA) gave an abbreviated presentation providing details of the developing Recommended Practice Document to build awareness and to get broader input on this item. The Subcommittee’s goal is to have the document drafted by early 2016, so that it can be refined and edited prior to the 2016 NCWM Annual Meeting. It is expected to be submitted for regional review in the fall of 2016.

At the 2016 NCWM Interim Meeting Mr. Guay (PALS Chair) and Hal Prince (PALS SWMA representative) gave a presentation on the developing Recommended Practice Document. PALS noted this document is envisioned to be a stand-alone document on the NCWM website and that PALS is targeting to have the document drafted by April, 2016 with the goal of getting broader review of NCWM membership prior to formal submission as a formal NCWM item.

At the 2016 NCWM Annual Meeting, Mr. Guay (PALS Chair) reported that the Subcommittee continues to address question and issues surfacing as the PALS subcommittee works on the Recommend Practice Document.

**Regional Association Comments:**

At the 2015 WWMA Annual Meeting, Chris Guay, (PALS Chair) and Angela Godwin (Ventura County, CA) provided a presentation on the draft document on quantity related statements appearing on the principal display panel outside the required statement of net quantity. WWMA appreciates the PALS’s work and recommended that this item remain as a Developing Item.

**CWMA 2016 Report:**

<b>Item 2700-2</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
Chris Guay, Chairperson of the PALS, provided an update on the activities of the committee.

<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b> <input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input checked="" type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>
<b>Regional recommendation to NCWM for item status:</b> <input type="checkbox"/> Voting Item on the NCWM Agenda <input type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> ) <input type="checkbox"/> Unable to consider at this time ( <i>Provide explanation in the "Additional Comments" section below</i> )
<b>Regional Report to NCWM:</b>
<b>No report to NCWM.</b>

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

#### **New-4**                      **NIST Handbook 158**

**Source:**

NIST Office of Weights and Measures (2017)

**Purpose:**

Promote uniformity among motor fuel quality inspection programs through the adoption of NIST Handbook 158 "Field Sampling Procedures for Fuel and Motor Oil Quality Testing – A Handbook for Use by Fuel and Oil Quality Regulatory Officials".

**Item under Consideration:**

Adopt NIST Handbook 158 – *Field Sampling Procedures for Fuel and Motor Oil Quality Testing*.

See Appendix B for NIST Handbook 158 in its entirety.

**Background /Discussion:**

Fuel and motor oil quality programs are implemented to provide an official presence in the marketplace and to verify that sellers of engine fuels and motor oils have control systems in place which ensure the products they sell conform to the quality specifications in federal and state laws and regulations. Routine, unannounced verification of fuel and motor oil quality enables the programs to identify sellers and their suppliers who have quality control systems in place and to focus enforcement resources on those who do not. This handbook outlines how samples are to be taken, identified, protected and transported to a laboratory for testing. It also provides information on safety and sampling equipment and includes illustrations of the equipment and forms described in the text. Adoption and use by regulatory programs may improve the accuracy and reliability of quality testing and also contribute to national uniformity in sampling methods.

**CWMA 2016 Report:**

<b>Item New-4</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
A state regulator from Missouri commented that a great deal of effort had gone into this draft. He is hoping for additional reviews
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<b>Committee recommendation to the region:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input checked="" type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> )
<b>Reasons for the committee recommendation:</b>
The committee supports this effort and feels that all regions need to review it and supply comments.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>
<b>Regional recommendation to NCWM for item status:</b>
<input type="checkbox"/> Voting Item on the NCWM Agenda <input checked="" type="checkbox"/> Information Item on the NCWM Agenda <input type="checkbox"/> Withdraw the Item from the NCWM Agenda ( <i>In the case of new items, do not forward to NCWM</i> ) <input type="checkbox"/> Developing Item on the NCWM Agenda ( <i>To be developed by source</i> ) <input type="checkbox"/> Unable to consider at this time ( <i>Provide explanation in the "Additional Comments" section below</i> )
<b>Regional Report to NCWM:</b>
A regulator commented that a great deal of effort had gone into this draft. He is hoping for additional reviews from FALS, other regions, state regulators and industry.

Additional letters, presentations and data may have been part of the committee's consideration. Please refer to <http://www.ncwm.net/meetings/interim/publication-15> to review these documents.

**ADDITIONAL ITEMS RECEIVED BY THIS REGION**

**CWMA-9                      Animal Bedding**

<b>CWMA New Item Number 9</b>
<b>Summary of comments considered by the regional committee (in writing or during the open hearings):</b>
An industry representative from American Wood Fibers commented that the industry is requesting a longer implementation time for the compressed size volume statement that was recently implemented. He stated that the date of January 1, 2018 enforcement date will be problematic due to the amount of product already in the market place. The industry wants to be certain that all the packaging in the field will be compliant without destroying current product already in the market place. A state regulator asked if the industry was already making labeling changes. The industry representative commented that implementing a new label was in process, but some products move more slowly than others, including animal bedding. A state regulator asked if the package labels were dated, and the response from the industry was that it varied from company to company. A state regulator asked if there was a way to put stickers on bags that are not in compliance with the new rule. The industry representative commented that it would be labor intensive, thus costly, to do so. He added that on many packages there is a volume statement

on multiple sides of the package.
<b>Item as proposed by the regional committee: (If different than agenda item)</b>
<p><b>Committee recommendation to the region:</b></p> <p><input checked="" type="checkbox"/> Voting Item on the NCWM Agenda</p> <p><input type="checkbox"/> Information Item on the NCWM Agenda</p> <p><input type="checkbox"/> Withdraw the Item from the NCWM Agenda (<i>In the case of new items, do not forward to NCWM</i>)</p> <p><input type="checkbox"/> Developing Item on the NCWM Agenda (<i>To be developed by source</i>)</p>
<b>Reasons for the committee recommendation:</b>
The Committee supports the request to extend the enforcement date to January 1, 2020 to allow for smooth implementation with minimal waste of product packaging.
<b>COMPLETE SECTION BELOW FOLLOWING VOTING SESSION</b>
<b>Final updated or revised proposal from the region: (If different than regional committee recommendation)</b>
<p><b>Regional recommendation to NCWM for item status:</b></p> <p><input checked="" type="checkbox"/> Voting Item on the NCWM Agenda</p> <p><input type="checkbox"/> Information Item on the NCWM Agenda</p> <p><input type="checkbox"/> Withdraw the Item from the NCWM Agenda (<i>In the case of new items, do not forward to NCWM</i>)</p> <p><input type="checkbox"/> Developing Item on the NCWM Agenda (<i>To be developed by source</i>)</p> <p><input type="checkbox"/> Unable to consider at this time (<i>Provide explanation in the "Additional Comments" section below</i>)</p>
<b>Regional Report to NCWM:</b>
The Committee supports the request to extend the enforcement date to January 1, 2020 to allow for smooth implementation with minimal waste of product packaging.

---

Lori Jacobson, South Dakota | Committee Chair  
 Fran Elson-Houston, Ohio | Member  
 Leroy Raymond, Missouri | Member  
 Doug Musick, Kansas | Member  
 John Albert, Missouri | NCWM Representative  
 Rebecca Richardson, National Biodiesel Board | Associate Membership Representative

**Laws and Regulations Committee**



**Appendix A**

**Item New-4: NIST Handbook 158**

*Field Sampling Procedures for Fuel and Motor Oil Quality Sampling*

**A Handbook for use by Fuel and Oil Quality Regulatory Officials**





# FIELD SAMPLING PROCEDURES FOR FUEL AND MOTOR OIL QUALITY TESTING

A HANDBOOK FOR USE BY FUEL AND OIL QUALITY  
REGULATORY OFFICIALS

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Physical Measurements Laboratory*

<http://dx.doi.org/10.60628/NIST.HB.158>

**April 2016**



**U.S. Department of Commerce**  
*Penny Pritzker, Secretary*

**National Institute of Standards and Technology**  
*Willie May, Under Secretary of Commerce for Standards and Technology and Director*

**NIST Handbook**

**158**  
**2016 Edition**

Certain commercial entities, equipment, or materials may be identified in this document in order to describe an experimental procedure or concept adequately. Such identification is not intended to imply recommendation or endorsement by the National Institute of Standards and Technology, nor is it intended to imply that the entities, materials, or equipment are necessarily the best available for the purpose.

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CODEN: NIHAE2

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**APPENDIX D. – REFERENCES AND ACKNOWLEDGMENTS .....D-68**

## I. PURPOSE AND SCOPE

Fuel and motor oil quality programs are implemented to provide an official presence in the marketplace to verify that sellers of engine fuels and motor oils have control systems in place to ensure the products they sell conform to the quality specifications in federal and state laws and regulations. Routine, unannounced verification of fuel and motor oil quality enables the programs to identify sellers and their suppliers who have quality control systems in place and to focus enforcement resources on those who do not. This handbook outlines how samples are to be taken, identified, protected and transported to a laboratory for testing. It also provides information on safety and sampling equipment and includes illustrations of the equipment or forms described in the text.

*NOTE: This handbook only covers the sampling of products stored at or near atmospheric pressure. For instance, the procedures for sampling fuels stored under pressure (e.g., LPG & CNG) are not included.*

## II. TERMINOLOGY

### A. Chain-of-Evidence (custody)

A record keeping system documenting the history of the collection, movement, storage location(s), custody (who possessed or controlled it), and other conditions (e.g., environmental and storage conditions, if critical to protecting the product) of a sample from the time it was obtained to the time it is accepted and logged into the laboratory management system for testing. See ASTM D4840 "Standard Guide for Sample Chain-of-Custody Procedures" for more information.

### B. Sample

An amount of fuel or motor oil taken from a storage tank or dispenser that is representative of a larger amount of product. A majority of the samples collected are classified as either "open," "routine," or "regular" samples which means they are periodically collected through "announced" inspection visits (that is the official identifies his or her self and notifies the seller that an inspection will be made and samples collected). A sample collected specifically in response to a complaint can be taken after announcing the purpose of the visit or as an unannounced or "undercover" investigation. References to other names for samples are mentioned in the section on sampling but those terms (i.e., nozzle sample versus bottom sample) only refer to the point of collection of the sample and should not be confused with this definition.

**Complaint/Undercover Investigation Sample:** The collection of a sample(s) of the product(s) in question without announcing its collection to the station operator/owner. This can be done by means of a "trap tank" in an undercover vehicle or by purchasing the product and putting it in an Underwriters Laboratory or Factory Mutual listed, approved container.

**User Collected Sample:** A sample that was not collected by a regulatory official following the prescribed sampling procedures. This sample can be tested but no immediate enforcement action can be taken on negative results because the sample may have been contaminated or mishandled by the user. However, the test results may indicate the need to take an official sample.

*NOTE: Evidence is something that tends to prove or disprove the existence of an alleged fact. A sample is "evidence" (and must be treated as such) but, it is typically called a "sample." A sample that is not collected in accordance with prescribed procedures, or which has an undocumented chain of custody, will have little chance of being admitted as evidence in legal proceedings.*



**NOTE:** For evidentiary purposes the collection of samples and related activities should be noted and documented either on paper or in digital data systems (these systems are acceptable for use only if there is a real-time continuous data back-up in operation and the data is maintained on a remote server) and all documents should bear the seal of the state or local authority as well as the identity of the agency collecting the sample. On each official document there should be a space for the placement of an official's signature of attestation or execution along with the individual's title and date of signing. Notes about an inspection should answer the questions who, what, when, where, why and how. This documentation allows for an independent evaluation of the work conducted and will allow an official to refresh his or her memory should he or she be asked to testify about an inspection at a later time.

### C. Sampled Lot

The amount of fuel or motor oil represented by a particular sample (i.e., the volume of product in the storage tank).

## III. SAFETY AND ENVIRONMENT



**The procedures in this handbook require the handling of harmful and flammable materials in hazardous work locations. This handbook cannot encompass all of the dangers that may be present while taking fuel and motor oil samples. Officials must identify and comply with the health and safety practices for each work location, following all notices and local requirements. Both short term and long term effects can impact health so being proactive is essential.**

The safety and physical well-being of officials and other individuals at the site is the first priority. This handbook does not address all of the safety issues that need to be considered before collecting samples. It is the official's duty to obey the safety rules in effect in the work environment in which samples are collected and to seek out advice and training on good working practices. Officials must work safely so that their actions do not harm others. Collecting samples requires working in hazardous environments with dangerous materials, which means that even a minor incident could result in serious injury or death. Samples should never be transported in the passenger compartment of a vehicle. Samples must be transported in closed metal boxes designed to contain a spill when secured in the trunk of a car, pickup or van should an accident occur. Never smoke or allow open flames around a vehicle used to transport samples.

### A. Awareness

The best safety tools are the senses of sight, smell and hearing and they should be used throughout the visit to collect samples to alert the official of potential dangers. The traits of vanity, apathy, and laziness have resulted in many injuries while common sense, patience, and safe work habits help to avoid them. Obtain and use available Personal Protective Equipment (PPE) like fuel and oil resistant gloves, bright orange or yellow safety vests or respirators regardless of appearance (e.g., wearing safety glasses). The job of sampling these products increases the frequency of exposure to the inhalation of harmful fumes; and fuel splashes or spills may contaminate clothing, result in flash fires, or cause other hazards such as slippery walking and climbing surfaces. (**Note:** It is a good idea to carry a change of clothing in case clothes do get soaked with fuel or motor oil). In retail locations for example, there is the added danger of vehicular traffic and exposure to accidents caused by careless or distracted motorists or customers who may disregard safety

rules and endanger others. No sample is worth an injury. Follow safety protocols and stop sampling immediately if safety cannot be controlled in the work environment. When working alone, extra precaution should be taken, such as advising the business personnel about the work that is being done and reminding them of their responsibility to ensure a safe working environment for those present on their property.

## **B. Safety Data Sheet (SDS)**

Read the SDS for each type of fuel (e.g., gasoline, gasohol, kerosene, E-85, diesel, marine fuel, aviation fuel) or motor oil that is sampled and periodically review (e.g., every six months) updated SDSs to learn new information on the product.

***NOTE:** To learn more see the American Petroleum Institute's "Safety Data Sheets: Petroleum Industry Practices" at this URL:*  
*[http://www.api.org/~media/Files/EHS/Health\\_Safety/SDS\\_Petroleum\\_Industry\\_Practices\\_Feb2009.pdf](http://www.api.org/~media/Files/EHS/Health_Safety/SDS_Petroleum_Industry_Practices_Feb2009.pdf)*

*Additional information is available from OSHA at:*  
*[https://www.osha.gov/Publications/HazComm\\_QuickCard\\_SafetyData.html](https://www.osha.gov/Publications/HazComm_QuickCard_SafetyData.html) and information on Safety Data Sheets is available at: <https://www.osha.gov/Publications/OSHA3514.html>*

*A detailed explanation of hazardous pictograms and symbols is available from OSHA at:*  
*<https://www.osha.gov/Publications/OSHA3636.pdf>*

## **C. Static Electricity**

The movement or separation of materials, including liquids, generates static electricity. When these materials are different, such as when fuel moves through a nozzle or a piece of clothing is separated from a car seat as a driver leaves the seat of a car, there is often a transfer of free electrons. If either or both of the materials are poor conductors, the potential for a static discharge can build as one material becomes negative and the other positive, depending on which accumulates excess electrons. When there is no bond or ground in place to dissipate the charges, the voltage builds and the static electricity seeks an outlet. High humidity does not prevent static electricity, and lightning, the strongest example of static electricity, is common during rainstorms.

Never underestimate the danger posed by static electricity when taking samples. Even though a specific fuel and air combination must be present for a spark to cause ignition, those conditions cannot be measured with the senses. Think and act as if a very hazardous situation exists whenever carrying out the tasks described in this handbook. Study and use good grounding practices and bonding equipment, noting that nothing completely eliminates the hazard presented by the accumulation of static electricity, which can build up rapidly for a wide variety of reasons in different sources (e.g., on clothing or the flow of fuel from the nozzle into a sampling container). Before pouring fuel into another container or from a nozzle into a container, be sure they are bonded or grounded to each other. For example, place the nozzle against the opening of the container and insert it as deep as possible (use a fill tube if available) to reduce splash filling and to maintain a smooth flow so that droplets do not form. Remember to ground equipment in accordance with the instructions of the manufacturer.

Sampling procedures can introduce spark promoters into storage tanks or transport compartments so extra caution, good grounding procedures and special non-sparking equipment and tools, must be used (e.g., cords made from synthetic materials such as nylon could cause charges as it rubs against a glove or other objects). When working around rusted steel, a spark hazard can be created if equipment made of aluminum or magnesium is used.

Be aware of the notices placed on and around dispensers and ensure compliance with any warnings (e.g., such as not filling a container while it is sitting on a plastic bed liner or while it is in an enclosed space such as the trunk of a car). After getting out of a vehicle, touch a metal part of the dispenser housing to discharge any electrostatic charge before going to the dispenser island.

Do not take samples during hail and thunderstorms or when lightning is observed.

Do not take samples from a dispenser connected to a storage tank being filled by a tanker truck because the filling process generates an electrostatic charge. Wait for 30 minutes after the delivery is completed before sampling from the tank or opening its fill ports.

It is a good habit to ground the static charge on one's body by touching a metal part of the dispenser or support structure of a tank before taking a sample. On tanks and drums, touch the structure at a point at least 1 m (39 in) away from an opening.

**NOTE:** To learn more about static electricity as it relates to fuels, visit the Petroleum Equipment Institute's "Stop Static" URL at <http://www.pei.org/static>. Also view the U.S. Chemical Safety and Hazard Investigation Board's video on one static caused explosion of non-conductive liquids to understand why reviewing SDSs periodically is essential: <https://www.youtube.com/watch?v=tVZzdmZaJk> (see also: <https://www.speedway.com/About/FuelSafety/>).

## D. Personal Protective Equipment

1. **Clothing:** Outer garments should be made from anti-static materials such as cotton (avoid wool and synthetics which, when moving against each other, can rapidly build up static charges). The color of the clothing should be suitable for the working environment and brightly colored or covered with a vest with light reflecting elements that conform to the Class 2 or 3 requirements in the latest edition of ANSI/ISEA 107 "High-Visibility Safety Apparel and Headwear."<sup>1</sup> This type of high-visibility safety apparel alerts motorists and other equipment operators to an official's presence in high traffic areas around fuel dispensers and storage tanks.
2. **Shoes:** Steel toed shoes or boots manufactured to be static dissipative and slip resistant with oil/gas resistant soles should be worn. Footwear capable of causing sparks should not be worn.
3. **Eye/Face Protection:** Safety glasses or goggles should be worn whenever samples are handled and especially during collection where splashing or spraying could occur.
4. **Skin:** Avoid skin contact with all fuels, oils and other chemicals. Hand protection should be worn whenever handling samples. Gloves should be made of Nitrile<sup>2</sup>, or coated with Neoprene or Tychem<sup>2</sup>. Materials such as Nitrile<sup>2</sup> offer chemical resistance, are considered to be strong disposable gloves, and are generally safe for people who are allergic to latex. PVC-coated gloves are recommended for use with biodiesel.
5. **Toxic Materials:** Avoid breathing toxic vapors. When fuel, oil vapors or mists are present, wear a National Institute for Occupational Safety and Health (NIOSH) – approved organic vapor/mist respirator and maintain it in accordance with the manufacturer's instructions.

## E. Other Safety and Accessory Equipment

1. **Eye Wash:** Portable eye wash station or emergency eye flush solution kit (e.g., Eyesaline<sup>2</sup> or equivalent).
2. **Flashlight:** Use an explosion proof flashlight, Class I Division 1 C&D, Class I Division 2 A, B, C, D, Class II Division 2 G, T3C Operating Temperature.
3. **Tools:** Set of non-sparking tools (including screwdrivers, adjustable wrenches, hammer and pry tools).
4. **Traffic Cones:** Four or more – 90 cm (36 in) fluorescent traffic cones (for blocking sampling area and tank openings).
5. **Fire Extinguishers:**

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<sup>1</sup> This ANSI Standard "High-Visibility Safety Apparel and Headwear (ANSI/ISEA 107-2010) was established by American National Standards Institute (<http://ansi.org/>) and the International Safety Equipment Association (<http://www.safetysystem.org/>). Officials and other workers are routinely exposed to the hazards of low visibility while on the job. This standard provides guidelines for the selection and use of high-visibility safety apparel such as shirts, rainwear, outerwear, safety vests and headwear to improve worker visibility during the day, in low-light conditions, and also at night.

<sup>2</sup> NOTICE: The mention of trade or brand names does not imply endorsement or recommendation by the U.S. Department of Commerce over similar products which provide equivalent or better protection that may be available from other manufacturers.

- a. **Fire Extinguisher 5 kg (10 lb) or larger:** B type extinguishers are best suited for petroleum fires but a multi-purpose fire extinguisher labeled A, B, C or any combination of those letters is recommended since any type of fire may be encountered. Assure that portable fire extinguishers with current, valid inspection dates are maintained in a fully charged and operable condition and kept in their designated places at all times except during use.
- b. **Foam extinguishers for samples with more than 10 % ethanol by volume:** AR Foam Fire Extinguisher – 6 L (2.5 gal): When the ethanol content of fuels is E10 or higher, an Alcohol Resistant (AR) foam must be used on gasoline fires as traditional AFFF foams have minimal effect.

**6. First Aid:** A first aid kit that meets or exceeds American National Standard (ANSI) Z308.1-1998 "Minimum Requirements for Workplace First-aid Kits."

**7. Fuel Containers:** 9.4 L to 19 L (2.5 gal to 5 gal) capacity metal fuel containers. These are used to hold fuel from nozzle flushes and to obtain undercover samples, and these must conform to "7-29 - Ignitable Liquid Storage in Portable Containers" from Factory Mutual - Global Property Loss Prevention Data Sheets and Underwriters Laboratory # 30 "Standard for Metal Safety Cans." These requirements cover metal safety cans that have nominal capacities of 19 L (5 gal) or less and that are primarily intended to store and handle flammable and combustible liquids, such as gasoline, naphtha, kerosene, acetone, MEK, and similar liquids in accordance with the Flammable and Combustible Liquids Code, NFPA 30.

**8. Digital Evidence Data:** Digital camera that is waterproof, shock resistant with GPS and wireless functions. This is for use in collecting photographic evidence such as signs, device markings, totalizer indications and other information.

#### **9. Spill Clean-Up Materials**

- a. **"Fuel/Oil Spill Kit":** Kit is used to contain, clean up, and dispose of spilled liquids such as water, oil, and chemicals. Spill kits typically include absorbent products (such as socks, pillows, and pads), a disposal bag, a steel self-closeable container for storage, and absorbent wipes for cleaning up spills.
- b. **Wiping Cloths:** Lint free wiping cloths or disposable wipes for wiping down sample containers and tools. Vehicles should be equipped with a self-closing steel trash can, stored outside the driver compartment, and used to hold disposable rags and wipes.

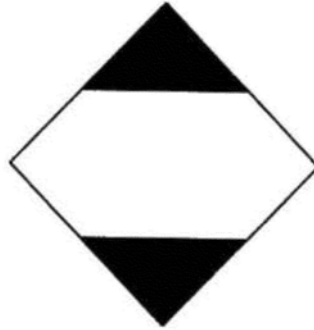
#### **F. Vehicle and Sample Case Markings for Hazardous Materials Transportation – Alerting Emergency Responders**

- 1. **Vehicles:** A vehicle used to transport limited quantities of hazardous material (less than 454 kg [1001 lb] aggregate gross weight) is not required to display hazardous material placards under U.S. Department of Transportation Hazardous Material Regulations. However, under that regulation, voluntary placarding is permitted to alert emergency responders that the vehicle's cargo compartment may contain containers of flammable or combustible liquids. This information may be valuable in case the vehicle is involved in an accident or other emergency.

For the exemption see: 49 CFR §172.504 "General Placarding Requirements."

*(c) Exception for less than 454 kg (1,001 pounds). Except for bulk packagings and hazardous materials subject to §172.505, when hazardous materials covered by table 2 of this section are transported by highway, placards are not required on (1) A transport vehicle which contains less than 454 kg (1001 pounds) aggregate gross weight of hazardous materials covered by table 2 of paragraph (e) of this section; The exceptions provided in paragraph (c) of this section do not prohibit the display of placards in the manner prescribed in this subpart, if not otherwise prohibited (see §172.502), on transport vehicles which are not required to be placarded.*

**2. Sample Cases:** When “limited quantities” of flammable liquids are contained in carrying cases or shipping cartons, other exceptions and labeling requirements apply. Under this exemption, officials are permitted to transport Class 3 Flammable and Combustible Liquids without a special driver’s license and shipping papers are not required. However, individual container capacity must not exceed certain limits (for Packing Group II it is 1 L (0.3 gal) and carrying cases and shipping cartons must be labeled with a “limited quantities” placard which conforms to 49 CFR 172.315 such as shown below:



For the exemption see: 49 CFR §173.150 Exceptions for (Limited Quantities) of Class 3 (Flammable and Combustible Liquids).

**§173.150 Exceptions for Class 3 (flammable and combustible liquids).**

**(a) General.** *Exceptions for hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the §172.101 Table of this subchapter.*

**(b) Limited quantities.** *Limited quantities of flammable liquids (Class 3) and combustible liquids are excepted from labeling requirements, unless the material is offered for transportation or transported by aircraft, and are excepted from the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. A limited quantity package that conforms to the provisions of this section is not subject to the shipping paper requirements of subpart C of part 172 of this subchapter, unless the material meets the definition of a hazardous substance, hazardous waste, marine pollutant, or is offered for transportation and transported by aircraft or vessel, and is eligible for the exceptions provided in §173.156 of this part. In addition, shipments of limited quantities are not subject to subpart F (Placarding) of part 172 of this subchapter. Each package must conform to the packaging requirements of subpart B of this part and may not exceed 30 kg (66 pounds) gross weight. Except for transportation by aircraft, the following combination packagings are authorized: (1) For flammable liquids in Packing Group I, inner packagings not over 0.5 L (0.1 gallon) net capacity each, packed in a strong outer packaging; (2) For flammable liquids in Packing Group II, inner packagings not over 1.0 L (0.3 gallons) net capacity each, packed in a strong outer packaging. (3) For flammable liquids in Packing Group III and combustible liquids, inner packagings not over 5.0 L (1.3 gallons) net capacity each, packed in a strong outer packaging.*

**Reference:** Find the latest version of these regulations at *Code of Federal Regulations* at: <http://www.ecfr.gov>.

**G. Safety and Health Checklist and Periodic Review**

Reorder replacement supplies immediately after use so adequate supplies are available to do the job. Also, during the first week of each month, safety and health related supplies should be inventoried and inspected to ensure that they are undamaged, any expiration of use dates are current and that equipment is ready for use. By setting a specific time to do the inspection, it will become a habit. Anticipate the need for replacement

supplies so that they can be ordered to allow ample time to obtain them and have them delivered. A sample checklist for inspecting safety and health equipment is presented in Appendix A. "Safety and Health Equipment Checklist."

## H. Training

Prior to performing any sampling activities, officials should attend training courses or webinars in these subjects:

- 1. Fire Extinguishers:** Use of fire extinguishers in fighting fires (a live fire demonstration is recommended).

For example see: Fire Extinguisher Training at <http://emergency.yale.edu/sites/default/files/files/TMS-Fire-Extinguisher-Training.pdf>

- 2. U.S. Department of Labor:** Occupational Safety and Health Administration (OSHA) Training on Flammable and Combustible Materials and Emergency spill response including how to clean up small spills.

For example see: OSHA Flammable Liquids at [https://www.osha.gov/dte/library/flammable\\_liquids/flammable\\_liquids.html](https://www.osha.gov/dte/library/flammable_liquids/flammable_liquids.html)

For example see: How Fire Departments Respond to Small Fuel Spills - Self Study at <https://www.pca.state.mn.us/sites/default/files/c-er4-05.pdf>

- 3. Ladder Safety:** Sometimes climbing may be required to obtain samples, so courses on ladder safety and cargo tanker safety are recommended.

For example see: Ladder Safety - Self Study at <http://www.laddersafetytraining.org/> and Climbing on Tankers at <http://www.cargotanksafety.org/wp-content/uploads/2014/03/ctrmctrailerclimbingtrainingoutline3-28-2011-110330091455-phpapp02.pdf>

- 4. First Aid Training:** This is required under OSHA First Aid Standard 29 CFR 1910.151 which requires that in the absence of an infirmary, clinic or hospital in close proximity to the workplace, a person or persons shall be adequately trained to render first aid. The First Aid, CPR, and AED Training must conform to OSHA First Aid Standard 29 CFR 1910.151 and should be provided by an instructor certified by the National Safety Council.

For example, see First Aid OSHA Compliance Training at <http://www.nsc.org/learn/Safety-Training/Pages/first-aid-train-your-employees.aspx>

- 5. Driver Training:** It is recommended that officials take an on-line or self-study Professional Truck Driver training course by the National Safety Council. The training covers defensive driving techniques to help avoid collisions, injuries and violations, and which teaches personal responsibility for driving decisions.

For example see: Professional Truck Driver Defensive Driving Course at <http://www.nsc.org/learn/Safety-Training/Pages/professional-truck-driver-training.aspx>

- 6. Other Training Resources:** <https://www.osha.gov/dte/library/index.html>

- 7. OSHA Laboratory Safety Guidance:** <https://www.osha.gov/Publications/laboratory/OSHA3404laboratory-safety-guidance.pdf>

## IV. SAMPLING PROCEDURE OVERVIEW

Specific quality assurance guidelines must be established within every fuel or motor oil inspection program to facilitate the implementation of a sampling program. However, the following general quality assurance procedures apply:

### A. Data

All data must be documented on standardized primary inspection reports and sample collection worksheets or entered into a digital equivalent.

### B. Instruments and Sampling Equipment

All instruments and sampling equipment must be operated in accordance with the operating instructions supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation and they must be documented.

### C. Sampling Procedures

Sampling procedures should be identical to those used by the Environmental Protection Agency (see 40 CFR 80.8) to collect samples of gasoline, diesel fuel, blendstocks, fuel additives, and renewable fuels for purposes of determining compliance with applicable laws and regulations.

1. **Manual Sampling:** Manual sampling of retail/wholesale fuel dispensers and storage tanks shall be performed according to the applicable procedures specified in the latest edition of ASTM International (ASTM) D4057 “Standard Practice for Manual Sampling of Petroleum and Petroleum Products.”
2. **Automatic Sampling (not addressed in this handbook):** Automatic sampling of petroleum products in pipelines shall be performed according to the applicable procedures specified in the latest edition of ASTM D4177 “Standard Practice for Automatic Sampling of Petroleum and Petroleum Products.”
3. **Sampling and Sample Handling for Volatility Measurement:** Samples to be analyzed for Reid Vapor Pressure (RVP) shall be collected and handled according to the applicable procedures specified in the latest edition of ASTM D5842 “Standard Practice for Sampling and Handling of Fuels for Volatility Measurement.”
4. **Sample Compositing:** Composite samples shall be prepared using the applicable procedures specified in ASTM D5854 “Standard Practice for Mixing and Handling of Liquid Samples of Petroleum and Petroleum Products.”
5. **Sampling Plans:** The collection of fuel and motor oil samples should be carried out under a directed work plan that ensures that these products are subject to periodic verification throughout the jurisdiction. Sampling is typically carried out without advance notice so there is no opportunity for the seller to alter either the product or labeling on the dispensing device. Variances from a plan are permitted (e.g., when new installations or new sellers or suppliers enter a marketplace). Increased frequency of inspections can be initiated on sellers whose products fail, but this decision should be based on the circumstances of each failure and should not be an automatic response. For example, if the cause of the failure was due to the miss-drop of a product by a new or part-time truck driver, then the likelihood of a repeat of this type of error is much less and may not merit a diversion of inspection resources. That is especially true if corrective actions and preventative measures are taken by the delivery company and seller.

## V. FUEL SAMPLING

A sample is a small amount of fuel taken from a storage tank or dispenser that is representative of a larger amount of fuel. The sample will be tested to determine if the fuel quality is in compliance with fuel quality standards. Sampling can be done manually or automatically with automatic systems. This handbook only addresses manual sampling. There are many “types” of samples defined by the location in a tank from where they are collected.

### A. Types of Manual Sampling

1. **Nozzle/Outlet Sampling:** Taking a sample from the outlet nozzle of a fuel dispenser or pump. This is the most common type of sample taken by officials. It is presumed to be representative of the fuel sold to consumers through all of the dispensers piped to the same storage tank.

#### Tank Sampling Positions

When there is a need to collect a sample from a storage tank, a weighted bottle is used to collect the following samples from various levels of fuel in the tank:

**Top Sample:** A sample taken 152 mm (6 in) below the top level of fuel.

**Upper Sample:** A sample taken from the middle of the top third level of fuel.

**Middle Sample:** A sample taken from the middle level of fuel (or a level halfway between the upper and lower sampling points).

**Lower Sample:** A sample taken from the middle of the bottom third level of fuel.

**Bottom Sample:** A sample taken on the bottom of a tank.

2. **All-Level Sample (sometimes called a “composition sample”):** A sample taken by submerging a closed-weighted bottle sampler to a point as near as possible to a tank’s outlet point. The sampler is then opened and raised at a constant rate so that it is between 70 % and 80 % full when it emerges from the top level of fuel.
3. **Average Sample:** A sample consisting of proportionate parts from all levels of the fuel (e.g., an average sample from a horizontal, cylindrical, or a spherical tank should contain more material from the middle of the tank where the diameter is greatest.)

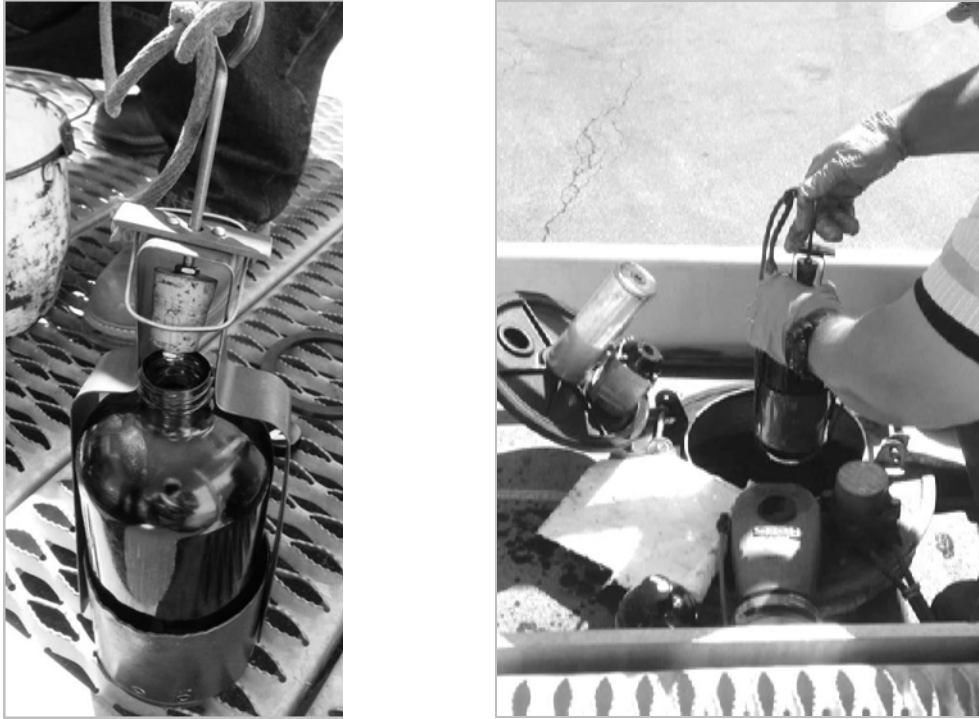
### B. Samplers

The most frequently used containers for collecting fuel samples from retail engine fuel dispensers are clear or amber glass bottles (PVC coated safety bottles that reduce spills if broken are available) or metal cans such as shown below. Typically, samples used for quality testing at the wholesale level are taken from storage tanks and tank trucks. There are also times when samples must be taken from bulk storage as part of an investigation or follow-up to a consumer complaint. The safe collection of a representative sample should be the criteria for selecting sample locations. A representative sample can be collected using techniques or equipment designed for obtaining fuels from various fuel depths. The structure and characteristics of some storage tanks present access problems with collection of samples from more than one location; therefore, the selection of sampling devices is an important consideration. Depending on the type of storage vessel, the official can choose a bacon bomb sampler, subsurface grab sampler, or a glass thief to collect the sample. Other custom-made samplers may be used depending on the specific application. Sometimes samples are taken from fuel storage tanks, tanker trucks and even barges. To collect samples from these sources, specialized fuel sampling equipment must be used. These include a weighted bottle (see Figure 1), a submerged sampler or bacon-bomb thief (see Figures 2, 3, and 5), and tank and drum thieves (see Figures 4 and 6). There are many other types of sampling equipment of many different designs so the following are



only examples of a few of the different tools available to the official for use in fuel sampling. The drop and other lines used on samplers is 100 % cotton rope with a brass end hook for attaching the rope to the sampler.

**NOTE:** *If a sampler is used to take the fuel sample for microbiological testing, it must be cleaned and sterilized prior to use.*



**Figure 1. A Weighted Bottle for use in sampling Stationary Tanks and Tanker Trucks.**

*Photo courtesy of Chevron Products Company and the California Division of Measurement Standards.*

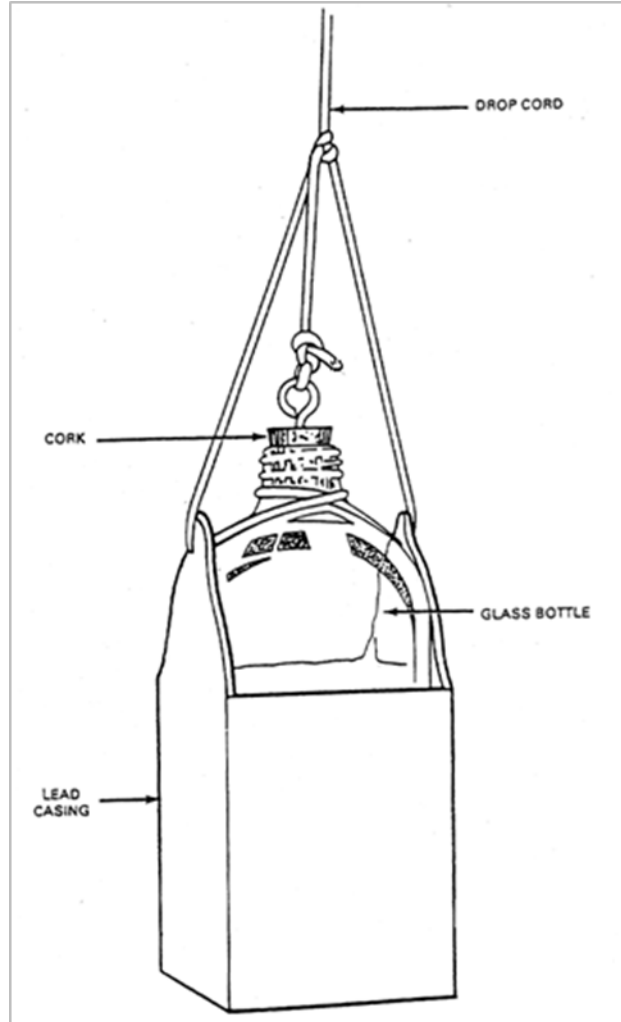
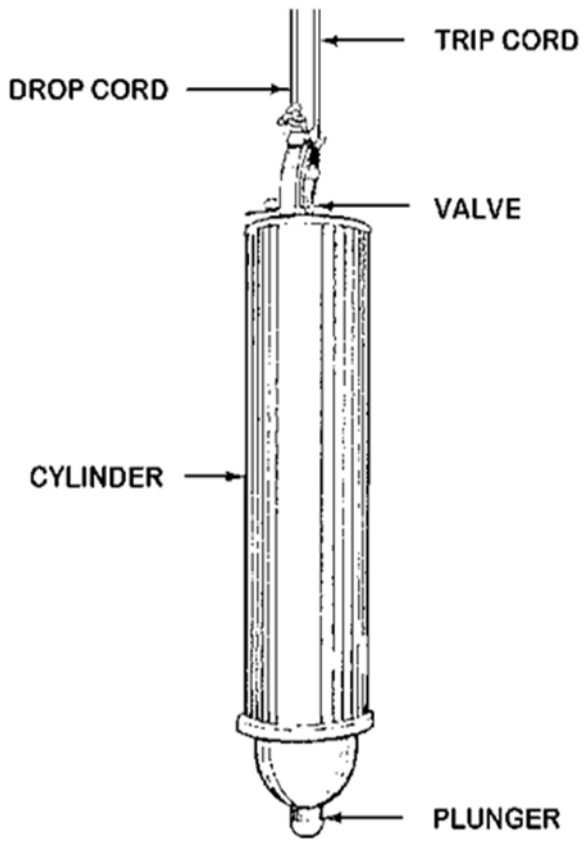


Figure 2. Weighted Sampling Bottle.



**Figure 3. Bacon Bomb Thief.**



**Figure 4. Tank Thief Sampler.**

*Photo courtesy of the Missouri Department of Agriculture.*

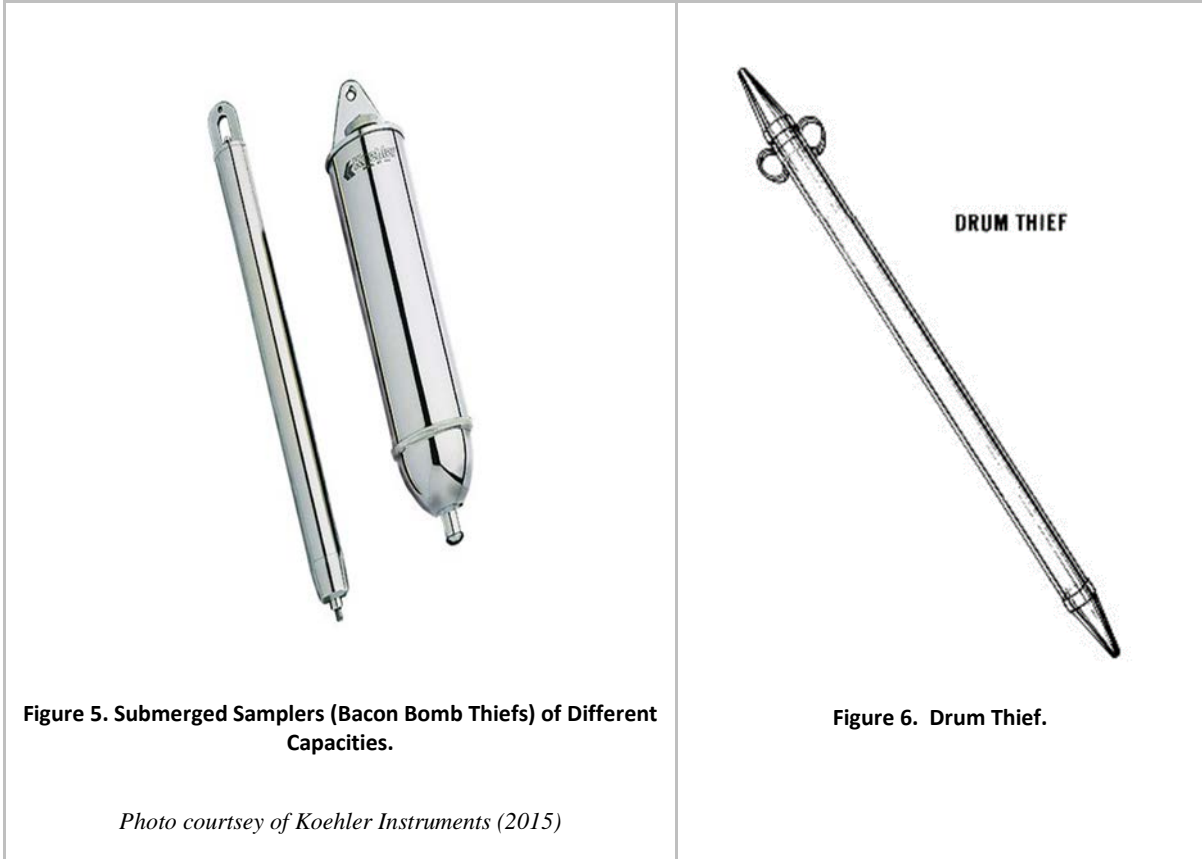


Figure 5. Submerged Samplers (Bacon Bomb Thieves) of Different Capacities.

Photo courtesy of Koehler Instruments (2015)

Figure 6. Drum Thief.

- 1. Weighted Bottle Sampler:** The weighted bottle sampler (see Figures 1 and 2) consists of a bottle permanently attached to a base. (Some of these types of samplers use a copper cylinder or beaker.) A drop cord is attached to the handle through a ring in the stopper so that a short, quick pull on the cord opens the bottle at any desired point beneath the surface of the liquid. This sampler is used to take an upper, middle, lower, or all-level samples of liquid products. It is used for sampling tanker or barge compartments, shore-tanks, tank cars, and tank trucks.

**Typical Procedures for Taking an All-Level Sample Using a Weighted Bottle Sampler:**

*NOTE: To ground a static buildup the person taking the sample should touch the tank at a point not less than 1 m (39 in) away from the sampling opening before starting the sampling process.*

**Recommended Steps:** Place an appropriate disposable fuel/oil spill pad (sometimes called a “soaker pad”) next to the tank sampling point.

*NOTE: Fill the sampler with fuel and drain it completely before taking a sample.*

- Assemble the weighted bottle sampler and open the tank access port.
- If the weighted bottle sampler is to be used to obtain samples at specific depths, then estimate the depth to be sampled and mark the sampling line at the desired depth. In some cases, a storage tank gauge stick may be lowered to the bottom of the tank, removed, and then used to measure the actual depth of the fuel as indicated on the stick. Using the sample line, slowly lower the sampler until the desired level is reached.
- When the sampler is at the required depth, pull out the bottle stopper with a sharp jerk of the sampler line and allow the bottle to fill completely (usually evidenced by the cessation of air bubbles).

- d. Retrieve the sampler by the sample line. Position it over the fuel/oil spill pad and wipe off the exterior of the sampler body with a disposable rag.
  - e. Position the sampler over the sample container and release its contents by pulling up on the plunger line. Fill the sample container to 80 % of capacity.
  - f. Cap the sample container tightly, and (if used in your jurisdiction, attach a security seal) place it in transport carrier.
  - g. Properly dispose of any excess fuel in the sampling device; then clean, dry, and store it.
  - h. Reseal the tank access port and properly dispose of any contaminated soaker pads or rags.
2. **Submerged Samplers (Bacon-Bomb-Thief)** (Figures 3 and 5): These samplers are typically used to take bottom samples but can be modified to take samples at different levels. They consist of a nickel-plated brass cylinder tapered at both ends and fitted with an internal, plunger-type valve. The valve opens automatically when the sampler strikes the bottom of a storage tank and allows the fuel to enter the container and closes when lifted. A drop cord is attached to a ring at the top of the sampler.

**Typical Procedures for Use of a Submerged Sampler:**

*NOTE: To ground a static buildup, the person taking the sample should touch the tank at a point at least 1 m (39 in) away from the sampling opening before starting the sampling process.*

**Recommended steps:** place an appropriate disposable fuel/oil spill pad (sometimes called a “soaker pad”) next to the tank sampling point.

*NOTE: Fill the sampler with fuel and then rinse and drain it before taking a sample.*

- a. Attach the sample line and the plunger line to the sampler.
- b. Estimate the depth to be sampled and then mark the sampling line with the desired depth. In most cases, a storage tank gauge stick may be lowered to the bottom of the tank, removed, and then used to measure the actual depth of the fuel as indicated on the stick.
- c. Open the tank access port. Using the sample line, slowly lower the sampler until the desired level is reached.
- d. Pull up on the plunger line and allow the sampler to fill before releasing the plunger line to close the seal.
- e. Retrieve the sampler by the sample line being careful not to pull up on the plunger line and thereby prevent accidental opening of the bottom valve.
- f. Position it over the fuel/oil spill pad and wipe off the exterior of the sampler body with a disposable rag.
- g. Position the sampler over the sample container and release its contents by pulling up on the plunger line. Fill the sample container to 80 % of capacity.
- h. Cap the sample container tightly and, (if used in your jurisdiction, attach a security seal) place in transport carrier.
- i. Properly dispose of any excess fuel in the sampling device and then clean, dry, and store it.
- j. Reseal the tank access port and properly dispose of any contaminated soaker pads or rags.

- 3. Tank or Drum Thief Sampler (Plastic Cylinder):** Typically these are plastic cylinder (tube type) samplers which consist of a multi-piece, plastic tube, 1 m (39 in) to 5 m (195 in) long and 38.1 mm (1½ in) at maximum diameter. The tubes are typically fitted with two finger rings at the upper end and three supporting legs at the bottom. Both ends are tapered with openings. The top opening of the sampler is closed with a stopper (or gloved thumb) or valve until the sampler is submerged in the liquid. Then the stopper is removed from the opening or the valve is opened, allowing the fuel to fill the sampler. It is used in tanks drums, barrels, or cans.

**Typical Procedures for Use:**

*NOTE: To ground a static buildup, the person taking the sample should touch the tank at a point at least 1 m (39 in) away from the sampling opening before starting the sampling process.*

*NOTE: Fill the sampler with fuel and then rinse and drain it before taking a sample.*

- a. Remove cover from sample container and place it on a solid level surface at a conveniently located height so that it is easily accessible when holding a filled thief tube (typically a clean, dry jar with a large opening is use to collect this fuel sample so that the tube thief can be easily inserted.)
- b. Open the tank access port. Slowly insert thief tube into storage tank. Hold it firmly with a wiping cloth while sampling and use the cloth to dry the tube as you remove it from the tank. Keep the cloth in contact with the tube throughout the process to reduce the buildup of static electricity.
- c. Open the tube or valve and allow the fuel in the storage tank to reach an equal level in the tube. Once the tube is filled close the tube or valve firmly.
- d. Remove the thief tube from the storage tank slowly to confirm that there is no fuel leaking and then insert the tube into the receiving jar. Wipe the tube dry.
- e. Release the fuel into the sampling container until it is filled to 80 % of capacity.
- f. Close the tube or valve firmly and remove the sampler from the sample container. Close the sample container. Dispose of any excess fuel in the tube and then clean, dry, and secure the sampler.
- g. Reseal the tank access port and properly dispose of any contaminated soaker pads or rags.

**C. Fuel Sample Containers**

Types of sample containers may include clear or amber colored borosilicate glass bottles (laboratory grade) or metal cans. (**Note:** Shatter resistance glass bottles are available from a variety of vendors.) Only cans with seams soldered on the exterior surface may be used for fuel samples. (If they are not properly soldered, minute traces of flux may contaminate the sample and interfere with tests for dielectric strength, resistance to oxidation, and sludge formation.) There are several reasons that clear bottles may be preferred. Glass prevents permeation and allows a visual inspection of the sample for cleanliness and to see if there is free water or solid impurities present. However, samples of gasoline, jet fuel, and kerosene must be protected from direct sunlight so amber bottles or cans are recommended for those fuels. Clear glass bottles covered with paper or foil may also be used, and immediately placing a clear bottle in a transport box (described elsewhere in this handbook) also provides protection. Screw caps made of either plastic or metal may be used; the caps should provide a vapor tight closure seal. The screw caps must be protected with liners made of metal foil, Teflon, polyethylene, or other material that will not be destroyed by or affect the sample product. Plain cork stoppers and lids with cardboard inner-liners are not acceptable. If samples are shipped, see the U.S. Department of Transportation requirements in §49 Code of Federal Regulations. Containers may be reused indefinitely but must be cleaned and resealed to reduce the possibility of contamination. See Table 1. Suggested Container Types and Minimum Sample Sizes and Figures 7 through 12 for examples of the containers typically in use and minimum sample sizes. For a

more detailed statement on specifications for sampling containers see ASTM D5854 “Standard Practice for the Mixing and Handling of Liquid Samples of Petroleum and Petroleum Products.”

**Table 1.**  
**Suggested Container Types and Minimum Sample Sizes for Fuel**

Product		Container Material				Minimum Sample Size
		Glass	Aluminum	Metal	FHDPB “Plastic”	
1.	<b>Gasoline</b> – General <sup>4</sup>	X	X	X	NO	2 L
	Alcohol/Ether	X	X	X	NO	2 L
	Vapor Pressure	X	X	X	NO	1 L
	Trace Lead	X	X	X	NO	1 L
2.	<b>Diesel Fuel</b> – General	X	X	X	NO	2 L
3.	<b>Kerosene</b> – General	X	X	X	NO	2 L
4.	<b>Fuel Oil</b> – General	X	X	X	NO	2 L
5.	<b>Aviation Gas</b> – General <sup>2,3</sup>	X	X	X	NO	2 L
6.	<b>Aviation Turbine Fuel</b> – General <sup>2,3</sup>	X	X	X	NO	2 L
7.	<b>Biodiesel</b> – General	X	X	X	NO	1 L
8.	<b>E85</b> – General	X	X	X	NO	1 L
9.	<b>Hydrogen</b> – General	X	X	X	NO	1 L
10.	<b>Methanol</b> – General	NO	NO	X <sup>1</sup>	NO	1 L

**NOTE 1:** Methanol (also known as methyl or wood alcohol) is used as a fuel primarily in race cars. It is also available in gasoline-methanol blends that range from 10 % to 30%. If samples are taken of these fuels do not use aluminum containers because there is a potential for corrosion to occur. It is recommended that containers constructed of 316L series stainless steel be used to hold samples of this fuel or blends containing methanol. See the “Methanol Safe Handling Manual” at Methanol Institute ([www.methanol.org](http://www.methanol.org)) for specific guidance on handling this product.

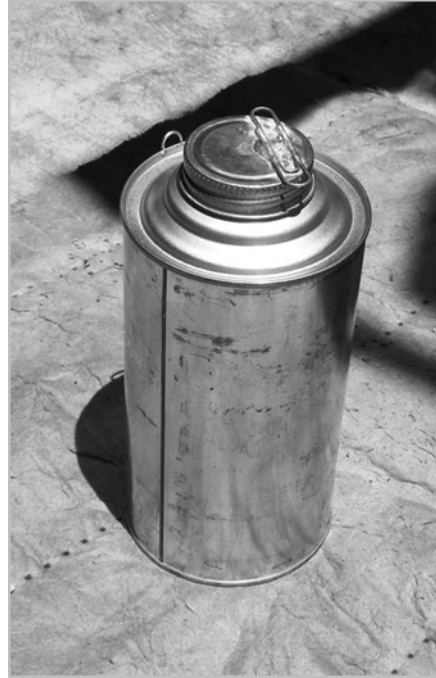
**NOTE 2:** See ASTM D4306 “Standard Practice for Aviation Fuel Sample Containers for Tests Affected by Trace Contamination” for more guidance on containers and their preparation prior to placing fuel in them. Generally, borosilicate glass bottles are adequate if wrapped in aluminum foil or stored in a sealed sample box to protect the fuel from light.

**NOTE 3:** When collecting samples of aviation gasoline and aviation turbine fuel for thermal stability, water separation, trace metal and other tests refer to ASTM 4306 for special container requirements and guidance on cleaning, preparation and handling procedures. The sample must be tested within 24 hours of taking.

**NOTE 4:** According to Section 6. Interferences in ASTM D2699 “Standard Test Method for Research Octane Number of Spark-Ignition Engine Fuel” and ASTM D2700 “Standard Test Method for Motor Octane Number of Spark-Ignition Engine Fuel” exposing fuels to UV wavelengths shorter than 550 nm for a short period of time may significantly affect octane number ratings. For this reason, fuel samples must be protected from damaging light. Collect and store fuels to be tested for research or motor octane in an opaque container, such as a dark brown glass bottle or metal can to minimize exposure to UV emissions from sources such as sunlight or fluorescent lamps.



**Figure 7. Clear Bottles.**

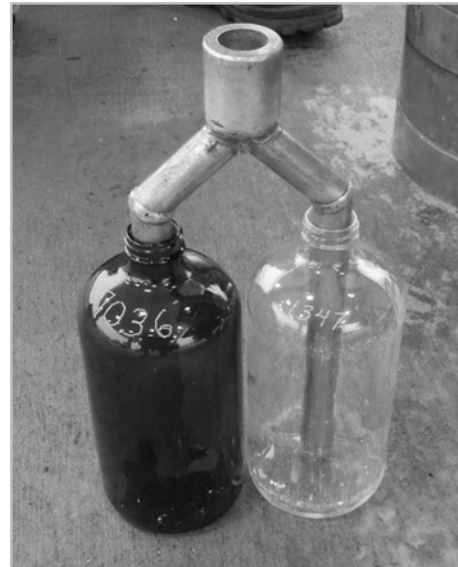


**Figure 8. Can with Provision for Security Seal.**



**Figure 9. Amber Brown Bottle with Label.**

*Photo courtesy of the State of Colorado, Div. of Oil and Public Safety.*



**Figure 10. Bottles with Etched Identity Numbers.**

*Photo courtesy of the Missouri Department of Agriculture.*





Figure 11. One Quart – Metal Container with Label.



Figure 12. One Liter - Stainless Round Container with Wire Security Seal Loops.

**D. Washing and Drying Sample Containers (one example)**

After each use, the sample container should be cleaned using the following procedure or one that provides equivalent or better results:

1. Rinse with a solvent. Discard solvent in accordance with good environmental practice.
2. Wash with a strong soap solution.
3. Rinse with distilled water.
4. Dry in a dust-free cabinet at a temperature of at least 40 °C (104 °F) or warmer.
5. Close container immediately after it is dry.
6. Store in a location specifically designated for clean-ready to use, sample containers.

**NOTE: Samples Containers for Microbiological Testing:** A sterilized glass or polypropylene bottle must be used to hold the sample. If a sampler is used to take the fuel sample, it too must be cleaned and sterilized before use. Sterilization can be accomplished by placing the bottle (and cap if heat resistant) in an oven at 160 °C (320 °F) for one hour. Alternatively, an autoclave may be used as long as the bottle and cap are dried prior to use. Microbiological sampling requires procedures not covered in this handbook. Refer to ASTM D7464 - 14 “Standard Practice for Manual Sampling of Liquid Fuels, Associated Materials and Fuel System Components for Microbiological Testing” for guidance on sampling methods and handling procedures.

**NOTE: Sample Containers for Trace Analysis:** Use procedures that ensure sampling equipment and containers are made with materials known not to interfere with the analysis. It is also important to ensure that every component of the sampling process is clean and dry so that the fuel sample is not contaminated or tainted.

**NOTE:** To avoid potential rust contamination, metal containers may be cleaned using Varsol or acetone.


**E. Capacities**

The capacity of the most common sample bottles and containers are typically 937 mL (1 QT) and they have sealing caps compatible with fuel. Bottles and sealing caps must be clean and dry prior to use.

**F. Identifying Samples for Traceability**

The information shown in Table 2 illustrates the type of information typically collected on a fuel sample. In many jurisdictions, the sample container is permanently marked with a unique identifying number and no label is applied. In other jurisdictions, a label is applied to the container which bears a unique identifier number. In most jurisdictions, a Fuel Sample Data Sheet (FSDA) is included with the sample in the shipping case. Some information may be stored in a database while other data is entered on a data sheet.

<b>Table 2. Examples of Entries on a Fuel Sample Data Sheet</b>		
	<b>Item</b>	<b>Entry</b>
<b>1.</b>	Sample number/unique container identity	Enter the sample container's unique identifier number. Each sample must have a unique identifier such as a number or alpha numeric code so its handling can be traceable, and so that all collection reports and laboratory tests are linked to the original sample.
<b>2.</b>	Product identification	Obtained from device product label, tank marking, or bill of lading.
<b>3.</b>	Ethanol content	Indicate if device label or signage reads (e.g., "up to 10 %" or "contains 10 %" or other claim).
<b>4.</b>	Sampling location identity	Enter business name, identifier number (this may be assigned by the fuel regulatory agency), address of sample location, business mail address, agent name, telephone, fax, and e-mail. This information may be used to immediately notify the seller to remove the product from sale should the sample fail.
<b>5.</b>	Special test to be conducted on sample	This item is entered if there is a reason to call for a specific test to be conducted on a sample. This may be used in cases where the testing laboratory does not routinely conduct the requested test on all samples (e.g., in case of a consumer complaint).
<b>6.</b>	Sampled lot	Amount of fuel that the sample represents. Total liters or gallons in the source fuel storage tank represented by the sample.
<b>7.</b>	Supplier(s) of fuel	Enter the name of the supplier or suppliers of the fuel in the source fuel storage tank.
<b>8.</b>	Date of last fuel delivery to storage tank.	Enter the day of the latest delivery of the fuel into the storage tank from which the sample was taken.
<b>9.</b>	Sample Taken by	Name (or identifier number) of the official who took the fuel sample.
<b>10.</b>	Source of sample	Identify the specific source of the sample (e.g., dispenser or storage tank identity, number or location, or license or vehicle number of tank truck and

<b>Table 2. Examples of Entries on a Fuel Sample Data Sheet</b>		
	<b>Item</b>	<b>Entry</b>
		compartment number).
<b>11.</b>	Date/Time sample collected	Enter the time of day, day, month and year indicating when the sample was collected.
<b>12.</b>	Sampling Equipment Used	Enter weighted bottle or other sampling tool, if applicable.
<b>13.</b>	Type of Sample (when taken with a Sampler)	Enter outlet sample, or upper, middle, lower, bottom or all level sample depending on the collection method used.
<b>14.</b>	Notes/Safety Warning Label	Enter weather conditions and any remarks necessary to accomplish the analysis of the sample. Provide Required Safety Warnings.  
<b>15.</b>	Security Seal(s)	Enter the identification number of any security seal applied to a sample container or transport case.

**G. Sample Transport Cases**

Most jurisdictions place fuel samples in sealable insulated containers immediately after they are taken. These cases (see examples in Figure 13) hold the fuel sample safely for transport and while protecting them from sunlight and heat. A sample case must bear a label indicating that it contains gasoline or oil samples to alert anyone who handles it that it contains flammable liquids. (See also Section I., F. Vehicle and Sample Case Markings for Hazardous Materials Transportation – Alerting Emergency Responders, Item 3. Sample Cases.)



**Figure 13a. Sample Box.**



**Figure 13b. Sample Box Showing Insulation.**

*Photo courtesy of the North Carolina Department of Agriculture and Consumer Services.*



**Figure 13c. Sample Box showing Security Seal in Place**

*Photo courtesy of the Missouri Department of Agriculture.*



**Figure 13d. Sample Box containing Collection Reports as received at the Fuel Laboratory.**

*Photo courtesy of the Missouri Department of Agriculture.*

*Photo courtesy of the Georgia Department of Agriculture.*

## **1. Procedure for Use of Transport Boxes:**

Once samples have been collected:

- a. Recheck that the sample container is not overfilled and confirm tightness of the cap/seal on the container and check for leakage.
- b. Ensure a unique sample identification number is on the can. Place sample container in the transport box.
- c. Ensure that the custody record for each transport box is complete, placed in a plastic protective cover, and placed in the container or affixed to the inside lid.
- d. Secure and custody seal the lid of the transport box and record the security seal number on the primary inspection report.

## **I. Security Seals for Containers and Boxes**

A container holding a fuel sample should be sealed as part of the chain of custody system but this sealing is not mandatory if other safeguards are in place. For example, if the fuel is held under the secure control and possession of the fuel official who collected the sample from time it was collected until it is delivered to the fuel laboratory, sealing is unnecessary. Another exception to sealing is permitted if the container is placed in a sealed sample transport box for storage and transportation to the fuel laboratory.

## **J. Recommended Sampling Equipment - Nozzle Extender**

It is recommended that all fuel samples be collected using a nozzle extender. These tubes are typically constructed of Schedule 80 non-ferrous metal. They can be constructed of a single tube (See Figure 14.) or

made for bi-furcated filling (See Figure 15.). See ASTM D5842 for detailed instruction on fabricating these extenders.



14. Single Nozzle Extender.



15. Dual Nozzle Extender.

Photo courtesy of the Missouri Department of Agriculture.

## VI. SAMPLING PROCEDURE FOR TAKING FUEL SAMPLES AT RETAIL FUELING LOCATIONS

### A. Preparation

1. **Conduct:** Officials must conduct themselves in a professional manner at all times when taking samples. This includes being aware of what is going on around them so that a safe working environment prevails. Officials should park vehicles in a suitable location until management of the sampling location have been notified of the identity, authority, and nature of the visit. When sampling at retail locations, it is often necessary to have the fuel dispensers authorized for operation so that samples can be taken. Officials must establish contact with the authorized management representative and explain how samples will be taken to ensure that the console operator(s) understand what is expected of them in assisting the official. It is management's right to observe sampling procedures and be present during the sample collection process if they choose to do so. This will allow the person to confirm the source of the fuel and identity of the container and enable them to satisfy themselves that the sample container was properly sealed and purged fuel was returned to the proper storage.
2. **Business Identity:** Obtain the business ownership and other identity information.
3. **Storage Tank:** To ensure that purged fuel is returned to the correct storage tank, verify that the markings on the storage tank are understood, and they match the fuel identity chart. If there is any doubt about the proper storage tank, the official should ask the location manager to indicate the appropriate tank access point.

**NOTE:** For reference see NIST Handbook 44, “Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices,” Section 3.30. Liquid-Measuring Devices Code, U.R.2.5. Product Storage Identification. (See also NIST Handbook 130, Uniform Engine Fuels and Automotive Lubricants Regulation, Section 4.4. Product Storage Identification.):

**Source: NIST Handbook 44 – Section 3.30.**

**UR.2.5. Product Storage Identification.**

- (a) The fill connection for any petroleum product storage tank or vessel supplying motor-fuel devices shall be permanently, plainly, and visibly marked as to product contained.
- (b) When the fill connection device is marked by means of a color code, the color code key shall be conspicuously displayed at the place of business.

4. **Avoid disrupting normal business operations:** The official should select a dispenser lane for sampling and either block the lane around the dispenser with safety cones or park their vehicle in the lane. The vehicle should be positioned to allow ample access to the dispenser. The official should turn off lights, radios and the vehicle engine and set its parking brake. A walk-around inspection should be conducted to ensure there is easy access to sampling equipment and a fire extinguisher. At the end of the sampling and before the vehicle is moved another walk-around inspection should be made to ensure that all equipment has been collected and all samples and the dispenser are secured (e.g., that the dispenser housing is reclosed if it was opened for inspection.)
5. **Payment for Samples:** In most jurisdictions, the official is obligated to pay the retail value of the product if a fuel sample is taken from a place of business where it can be sold legally unless the sample is being collected pursuant to a search warrant, or the fuel’s owner surrenders the sample at no cost.

A sample of a payment receipt is shown below:

<p><b>PAYMENT RECEIPT</b></p> <p><b>Agency Responsible for Engine Fuel Quality</b></p> <p><b>Address,</b> <b>City, State, Zip</b></p> <p><b>Telephone, E-mail, URL</b></p>		
<b>Seller’s Name:</b>	<b>Address:</b>	<b>Date:</b>
<p>Received \$ _____ as payment for the fuel or oil samples described below taken for inspection purposes as provided for by Chapter xxxxx of the Code of the State of _____.</p> <p style="text-align: right; margin-top: 20px;">_____</p> <p style="text-align: right; margin-top: 5px;"><b>Signature of Business Representative</b></p>		
<b>Sample Taken:</b>	<b>Official:</b>	

6. **Documentation:** Throughout an official visit, it is important that information about device labeling and signage related to the fuel be recorded to document the product identity and other claims made by a seller. The official should make a brief record of actions taken and his or her observations as well as details of any relevant information provided by the seller or the seller’s representative. Taking notes, photographs, and keeping logs provide permanent records of a fuel sampling activity and facilitate enforcement.

**B. Sample and Containers**

1. **Sample Size:** A fuel sample of at least 1 L (1 qt) should be taken. If a vapor pressure test is to be performed, an additional fuel sample of the same volume should be taken. As a general rule, a sufficient amount of product should be collected to allow for the initial test, a repeat test, and retention of some product for evidence in case of legal action. For reasons of due process, irreplaceable evidence, whether favorable or unfavorable to a regulated business, should not be discarded prior to the conclusion of legal proceedings, including the time allowed for the filing of appeals.
2. **Sample Container Fill Levels:** To allow for thermal expansion, sample containers should not be filled to more than 80 % of their capacity. Samples taken for vapor pressure testing **MUST** be filled between the 70 % to 80 % level. The official should always close sample containers tightly immediately after filling and check for leaks by tilting the container up and holding it in the inverted position for 10 seconds. The most widely used method for the collection of fuel samples is to fill a clean sample bottle with fuel from a dispenser nozzle/outlet. This eliminates the use of other sampling equipment and reduces the risk of contamination. The sample container should be of the type best suited to the product and to the purpose of the test. It must be visually inspected immediately prior to use to ensure it is clean, dry, and lint-free. Only use clean and dry sampling equipment and containers to prevent contamination of the fuel sample.

<b>Table 2. Sample Size – Container Fill Levels Based on Dispenser Readings</b>		
<b>Sample Container Capacity</b>	<b>70 % Capacity</b>	<b>80 % Capacity</b>
<b>1 Fl Qt*</b>	<b>Dispenser Readings from Zero (0)</b>	
0.25 gal	0.175 gal	0.200 gal
0.946 L*	0.662 L	0.756 L
Sample Container Capacity – 1 L	0.700 L	0.800 L
*These values are provided for situations where a one fluid quart container is used to take a sample from a retail dispenser, which delivers in liters.		

3. **Recommended Sampling Practice:** It is recommended that the sample container be placed on the island next to the dispenser (or on a grounded cart such as the one pictured below) to avoid the possibility that the container will be dropped or that a spill might result in the official’s clothes be soaked with fuel. Submerged filling of an open container is critical to ensuring safety and to reduce the loss of light ends<sup>3</sup>. The official should use a cotton rag to wipe and clean the parts of the nozzle and extension piece that come into contact with the sample container and fuel sample. Use of an extension tube constructed of

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<sup>3</sup>The term “light ends” means hydrocarbons from crude distillation that are low density (lighter weight than gasoline) and have low boiling temperatures. Butanes are the most common light end hydrocarbons used in gasoline.

conductive metal (e.g., copper) that reaches to the bottom of the sample container to ensure submerged filling of the container (see Figure 16) is recommended for taking all samples. The official should place the metal nozzle spout in contact with the extension piece or container to prevent build up and discharge of static electricity and then manually control the nozzle and fill the container slowly to decrease the build-up of static electricity. It is recommended that the sample container be kept at least 1 m (3 ft) away from any vehicle during filling to prevent ignition of fumes by hot engines or catalytic converters during filling.



*Figure 16. Sample Bottles Empty and Filled with Bifurcated Tube.*

*Photos Courtesy of Missouri Department of Agriculture*





**17. Fuel Sampling Cart with Transport Case and Safety Gasoline Can to hold fuel from nozzle-hose flushes.\***



**18. Fuel Sampling Cart with Sample Container bonded to cart and ground.\***

*\*This cart is used by the State of North Carolina. Photos courtesy of the North Carolina Department of Agriculture and Consumer Services*

## C. Sampling

1. **Sample Taken from a Measuring Device that Dispenses a Single Product:** No flushing is required for this nozzle-hose combination. The official should:
  - a. Place the sample container on the concrete drive-way, a grounded cart, or on the island next to the dispenser so it is grounded or bonded.
  - b. Use a cotton rag to wipe the parts of the nozzle and extension tube that come into contact with the sample container and fuel sample.
  - c. Authorize the dispenser and place the nozzle/outlet and extension tube in the sample container and fill it slowly to reduce foaming and light end loss and so that air leaves the container without splashing fuel droplets. Continue until it is filled to the specified volume (or the dispenser indicates the quantity specified for the sample). See Table above for dispenser readings when the delivery begins at 0.000.
  - d. Close the sample container and mark as required.
2. **Sample Taken from a Multi-Product or Blended Product Dispenser (see 3 for recommended procedures for use in taking an E15 sample).**

**Background:** In 2000, the National Conference on Weights and Measures (NCWM) Laws and Regulations (L&R) Committee issued a guideline recommending that the minimum flush quantity to be least 1.1 L (0.3 gal).<sup>4</sup> Since that time, data from a number of states indicates that this amount (1.1 L) is

<sup>4</sup>Several programs report that when that recommendation was followed many samples failed because the amount of fuel retained in dispensers varies depending on the installation. At least one program reported that its inspectors use a 1 gal flush to eliminate the possibility that hose and nozzle contamination can cause a sample to fail or that a failure can be called into question due to the use of a 1.1 L (0.3 gal) purge. Another program reported that increasing the flush quantity to 1.8 L (0.5 gal) was successful in addressing one issue where samples passed when taken from Side A of a dispenser and failed when taken on Side B. Investigation revealed the cause was likely due to the fact that Side B installation required additional piping that was not being purged using the 1.1 L (0.3 gal) value. Based on these and related

*not sufficient. NIST recommends that a minimum flush quantity of 1.8 L (0.5 gal) be used for most installations unless the installation indicates that a larger purge is justified. The fuel used for flushing the nozzle of the dispensers should be collected in an approved container and then be returned to the storage tank containing the lowest octane fuel but do not return flex-fuel blends of ethanol above 10 % to the source storage tank.<sup>5</sup> Provision must be made by the seller for disposing of blended products which cannot be returned to storage tanks. The amount of fuel flushed from each dispenser must be recorded on the primary inspection report and a copy presented to the seller.*

The official should:

- a. Select the lowest grade. Authorize the dispenser and run 1.8 L (0.5 gal) slowly into an approved container (e.g., a 19 L [5 gal] safety can or test measure).

**NOTE:** *When a sample is taken from a measuring device that is capable of blending different grades of fuel for delivery through a single nozzle, the official must flush the hose and nozzle prior to taking a sample. NIST recommends that a minimum flush quantity of 1.8 L (0.5 gal) be taken from a typical dispenser installation equipped with a standard length hose.*

- b. Use a cotton rag to wipe the parts of the nozzle and extension tube that come into contact with the container and fuel sample. (See Table 2. Sample Size \_ Container Fill Levels Based on Dispenser Readings when the delivery begins at zero [0]).
- c. Place the nozzle/outlet and extension tube in the sample container and fill it slowly to reduce foaming and light end loss and so that air leaves the container without splashing fuel droplets. Continue until it is filled to the specified volume (or the dispenser indicates the quantity specified for the sample).
- d. Seal the sample container and mark as required. The exterior of the sample container must be wiped to ensure it is clean and dry prior to placement in a sample transport case.
- e. Reset and reauthorize the dispenser, select the next grade, flush the nozzle and hose and fill the sample container as described above. Continue this process until samples of all grades have been taken.
- f. Return purged fuel to proper storage and record quantities on inspection report. Do not return flex-fuel blends of ethanol above 10 % to the source storage tank. Provision must be made by the seller for disposing of blended products which cannot be returned to storage tanks.

**NOTE:** *Where mid-grade flex fuels are blended using Multiple Product Dispensers (MPD), adjustments MUST be made to the blend ratio of each dispenser at different times throughout the year to ensure that the blend contains the required amount of ethanol. The time at which these changes are made is dependent on the geographic location of the dispenser. The blend ratio required to achieve the correct blend depends on the amount of ethanol contained in the unleaded gasoline and E85. The amount of ethanol contained in these components will vary with the provider. Each grade of mid-grade flex fuel dispensed through blending dispensers must be independently tested for ethanol content at the time the dispenser (or group of dispensers) is installed at a facility, and prior to use.*

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comments received on two drafts of this handbook, NIST recommends a minimum flush quantity of 1.8 L (0.5 gal) be used for most installations unless the installation indicates that a larger purge is justified.

<sup>5</sup>From Draft “Blending and Dispensing Flex Fuels” by the Colorado Department of Labor and Employment – Division of Oil and Public Safety at: <https://www.colorado.gov/pacific/sites/default/files/Guidance%20-%20Blending%20And%20Dispensing%20Flex%20Fuels.pdf>. Accessed 8/12/2015. See also “Missouri Guidelines for Blending Flex Fuels Pilot Program” at <http://www.blenderpumps.org/factors-to-consider/state-guidelines-a-programs/103-guidelines-for-blending-flex-fuels-pilot-program.html>. Accessed 8/12/15.

### 3. Recommended Sampling Procedures for Taking an E15 Sample from a Multiple Product Dispenser (MPD).

**Background:** Multiple Product Dispensers (MPDs) or blender pumps are designed to deliver a single grade of product or to combine two grades at the dispenser in predetermined ratios by drawing fuel from different storage tanks and using sensors and flow rate controllers that ensure the targeted blend is dispensed. These pumps have been used for many years to create mid-octane fuels by blending the low and high octane fuels at the dispenser. The typical MPD uses a feedback system to adjust the blend delivered at the nozzle. To do that two grades of fuel from two different inlets are fed through individual meters with their quantities controlled by a variable flow valve located after each meter. The dispenser senses the amount of product going through each meter and adjusts the opening of each valve to conform to the ratio for the selected product. At the beginning of the transaction and during re-starts (i.e., the blend ratio mechanism is reset every time the user closes and reopens the nozzle and when the nozzle's automatic shutoff kicks in and the nozzle is then restarted), the dispenser makes adjustments to attain the correct blend ratio as it relates to the entire transaction and to deliveries made at normal speed. It is important to recognize that the fuel blend is also affected by both the flow rate of the dispenser and system pressure, which varies depending on the number of dispensers on the system drawing from the different fuel storage tanks. The blend ratios will be different when using a MPD to produce E15 and mid-level ethanol blends (Exx). Because the normal fuel sampling process involves taking a small quantity of fuel at a slow flow rate (and that may involve re-starts), it is likely that the fuel blend in these samples are not representative of the fuel delivered in a typical customer transaction. The Environmental Protection Agency (EPA) has recognized that this operational characteristic of MPDs for blending E15 may result in the inadvertent mis-fueling of E15 in vehicles, engines, and equipment not covered under the EPA's E15 waiver to the Clean Air Act. To help ensure that customers do not inadvertently mis-fuel vehicles, engines, and equipment not covered under E15 waiver, the EPA requires retailers to dispense E15 at a MPD only through EPA-approved MPD configurations. (See pages 43 and 45 in the "E-15 Retailer Handbook" by the Renewable Fuels Association at [http://ethanolrfa.3cdn.net/643f311e9180a7b1a8\\_wwm6iuulj.pdf](http://ethanolrfa.3cdn.net/643f311e9180a7b1a8_wwm6iuulj.pdf).)

For these reasons, it is recommended that a fuel quality sample (e.g., 1 L) be taken from a larger sample of between 7.5 L (2-Gal) and 9.4 L (2.5-Gal) or more. The sample should be collected in a clean container (e.g., a 9.4 L (2.5-Gal) or 19 L (5-Gal) safety can under a continuous flow delivered at or near the full-flow rate of the device because this allows the dispenser adequate time to account for system variations in making its adjustments to the blend ratio. If the flow is interrupted prior to collecting at least 7.5 L (2-gal) the product must not be used in a fuel sample. By following the recommended procedures to collect samples for fuel quality determinations, an official should obtain an accurate representation of the fuel that the dispenser has delivered.

**Important:** For samples to be tested for conformance to volatility standards during the VOC season (June 1- Sept 15) additional steps and procedures will need to be followed. See NOTICES section for appropriate ASTM International Standards.

#### **E15 Sampling Procedure**

There are several methods that can be used to obtain a sample of the product that is representative of the fuel going into the customer's tank in a typical delivery. Here are three suggestions based on whether the official is simply taking a fuel sample or taking a fuel sample in conjunction with testing the dispenser for accuracy according to NIST Handbook 44.

There are three acceptable Methods for procuring samples for quality testing.

Method 1 - the E15 sample can be poured directly into the sample container from a clean 9.4 L (2.5-Gal) or 19 L (5-Gal) Type II DOT Safety Can with a 15.8 mm (<sup>5</sup>/<sub>8</sub> in) nozzle dedicated for use in collecting E15 samples.

#### **Method #1 (Taking a Fuel Sample)**

1. Flush the dispenser with a minimum of 1.8 L (0.5-Gal) using E15 (or with the blend being tested) into a separate container using a continuous flow at or near the full-flow rate of the device and dispose of the flushed fuel.
2. Place the nozzle into the can against the opening at a level to avoid overfilling but positioned to reduce the possibility of prematurely activating the automatic shut-off mechanism. If practical, maintain a continuous flow by avoiding manual restarts of the nozzle. Start a new transaction with the E15 setting (or whatever blend is under test), dispense at least 7.5 L (2-Gal) into a clean 9.4 L (2.5-Gal) or larger safety can using a continuous flow at or near the full-flow rate of the dispenser. If the flow is stopped for any reason prior to the collection of 7.5 L (2-Gal) dispose of the fuel and repeat this step.
3. Take the sample from the fuel in the container.

**Method #2 – (Taking a Fuel Sample)**

1. Flush the dispenser with a minimum of 7.5 L (2-Gal) with continuous flow at or near the full-flow rate of the device using E15 (or whatever blend is being tested). If there is a flow interruption prior to delivering 2-Gallons do not restart the flow, dispose of the fuel. Repeat this step until more than 7.5 L (2-Gal) is delivered without interruption. Proceed to next step.
2. Pull a sample from what is left in the hose (residual) into an appropriate clean sampling container. The sample should not exceed 0.49 L (0.13-Gal).
3. Dispose of the flushed fuel.

**Method #3 (Taking a Fuel Sample in conjunction with a device accuracy test)**

1. Flush the dispenser with a minimum of 1.8 L (0.5-Gal) using E15 (or whatever blend is being tested) into a separate container using a continuous flow at or near the full-flow rate of the device. Dispose of the flushed fuel.
2. Place the nozzle in the test measure and against the opening at a level to avoid overfilling the test measure and but positioned to reduce the possibility of prematurely activating the automatic shut-off mechanism. Conduct a device accuracy test in the E15 setting (or whatever blend is being tested), and dispense 19 L (5-Gal) into a test measure to check the accuracy of the dispenser. Operate the nozzle at or near the full-flow rate of the device and, if practical, maintain a continuous flow by avoiding manual restarts of the nozzle.
3. After the accuracy test is completed, take the fuel sample directly from the test measure by filling the sample container using a clean dry funnel.

NOTICE: It is recommended that the following ASTM International Standards be utilized to procure fuel quality samples and to determine the ethanol content of E15 (or whatever blend is being tested) samples.

- ASTM D5599 - 15 “Standard Test Method for Determination of Oxygenates in Gasoline by Gas Chromatography and Oxygen Selective Flame Ionization Detection”
- ASTM D5501-12<sup>ε1</sup> “Standard Test Method for Determination of Ethanol and Methanol Content in Fuels Containing Greater than 20% Ethanol by Gas Chromatography”
- ASTM – D4057 - 12 “Standard Practice for Manual Sampling of Petroleum and Petroleum Products”
- ASTM - D5842 - 14 “Standard Practice for Sampling and Handling of Fuels for Volatility Measurement”

<sup>ε1</sup> Note – Editorial corrections were made to 7.4.3. and 7.5. in July 2013

**1. NIST Handbook 44, Section 3.30. Liquid Measuring Devices, User Requirements (UR).**

**NOTE: Alternative Flush Quantities:** The recommended minimum flush amount is based on the internal volume of a 3 m (10 ft) hose. In NIST Handbook 44, “Specifications Tolerances and other Technical Requirements for Commercial Weighing and Measuring Devices,” Section 3.30. Liquid Measuring Device Code, U.R.1.1. User Requirement (shown below) permits discharge hose lengths up to 5.5 m (18 ft) on most retail fuel dispensers, but dispensers at marinas are permitted to extend to 15 m (50 ft).

**UR.1.1. Discharge Hose.**

**UR.1.1.1. Length.** – The length of the discharge hose on a retail motor-fuel device:

- (a) shall be measured from its housing or outlet of the discharge line to the inlet of the discharge nozzle;
- (b) shall be measured with the hose fully extended if it is coiled or otherwise retained or connected inside a housing; and
- (c) shall not exceed 5.5 m (18 ft) unless it can be demonstrated that a longer hose is essential to permit deliveries to be made to receiving vehicles or vessels.

An unnecessarily remote location of a device shall not be accepted as justification for an abnormally long hose.

**UR.1.1.2. Marinas and Airports.**

**UR.1.1.2.1. Length.** – The length of the discharge hose shall be as short as practicable, and shall not exceed 15 m (50 ft) unless it can be demonstrated that a longer hose is essential.

The following table provides the approximate volume contained in various internal diameters of fuel hoses with the length of 3 m (10 ft). The recommended purge is adequate for the most commonly used hose with an internal diameter up to 22.2 mm (7/8 in) hose diameter. If an official encounters hoses with larger internal diameters or lengths of greater than 3 m (10 ft) the flush amount can be adjusted to fully purge the hose and reduce the chance for contamination. If 3 m (10 ft) lengths of the larger interior diameters hoses are found, increase the flush to the quantities stated in Column 2. If longer lengths of any of the discharge hoses are found, the official should measure its length and multiply that value by the volume contained in 304 mm (1 ft) by the volume in Column 3. For example, if a blending dispenser with a 18 ft discharge hose with an interior diameter of 7/8 in is found, multiply 18 × 0.030 gal = flush volume of 0.540 gal.

<b>Column 1. Discharge Hose Interior Diameter</b>	<b>Column 2. Approximate Volume in 3 m (10 ft)</b>	<b>Column 3. Approximate Volume in 304 mm (1 ft)</b>
12.7 mm (1/2 in)	0.370 L (0.10 gal)	0.037 L (0.010 gal)
15.9 mm (5/8 in)	0.600 L (0.16 gal)	0.056 L (0.015 gal)
19.1 mm (3/4 in)	0.870 L (0.23 gal)	0.075 L (0.020 gal)
22.2 mm (7/8 in)	1.170 L (0.31 gal)	0.113 L (0.030 gal)
25.4 mm (1 in)	1.552 L (0.41 gal)	0.151 L (0.040 gal)
31.8 mm (1 1/4 in)	2.422 L (0.64 gal)	0.227 L (0.060 gal)

**NOTE:** Except for the ethanol blends noted above, return the accumulated flush fuel for all of the sampled blends to the lowest grade storage tank.

**NOTE:** *If a weights and measures official is testing dispensers for compliance with NIST Handbook 44 using a 19 L (5 gal) test measure, the flush procedure can be skipped and the fuel sample taken after the official has filled the measure and determined the device error.*

**NOTE:** *Officials should verify and document the dispenser's programmed blend ratio if they have the appropriate access equipment and training from the device manufacturer. This is a good practice to carry out on new installations and devices where there is a suspected problem with fuel grades. Instructions for accessing the blend ratio of a device are included in the Certificate of Conformance for a blending device from the NCWM. The NCWM Certificate of Conformance Search Engine is located at this URL: [http://www.ncwm.net/ntep/cert\\_search](http://www.ncwm.net/ntep/cert_search).*

## **5. Taking a Sample of Fuel for Volatility Measurement**

The vapor pressure of a fuel is affected by evaporation and composition so special handling and filling equipment is required. This nozzle sampling procedure is based on ASTM D5842 "Standard Practice for Sampling and Handling of Fuels for Volatility Measurement."

- a. If the sample is taken from a blending dispenser, flush the nozzle with 1 L (0.3 gal) of the grade of product being sampled. This step is taken to ensure the hose and nozzle is not contaminated with a blend of fuel different from that intended to be tested.

The official should then:

- b. Rinse the sample container (and sampling device if used) with fuel and allow it to drain before filling. This step is taken to ensure the container is not contaminated and it cools the container which may help to reduce evaporation.
- c. Use a nozzle extender to fill the sample container slowly to 70 % to 80 % of its capacity. The slow filling time and nozzle extension are used to reduce evaporation.
- d. Immediately seal the sample container and check it for leaks. If a leak is found discard the sample and container and take another sample using a new container. It is recommended that a sealing tape be wrapped around the container lid to further reduce the chance of evaporation (See Figure 4 below for an example of bottles sealed in this manner).

**NOTE:** *When glass bottles are used in collecting samples for vapor pressure testing, it is recommended that container sealing tape be used to seal the lower edge of the cap to the neck of the bottle to prevent evaporation. (This is usually a stretchable tape that reduces the chance for gas exchange and prevents the entry of contaminants. These tapes remain flexible in most temperatures and they are waterproof and resistant to most chemicals.) If the containers are properly sealed and leak free, they can also be inverted during shipment to prevent evaporation.*

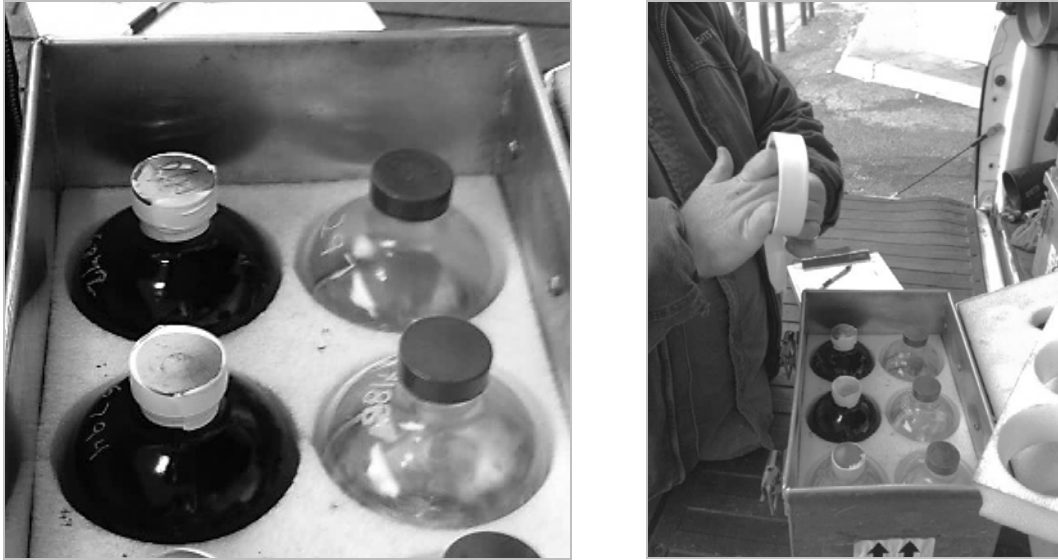


Figure 19. Sealing Tape Applied to Amber Sample Bottles

Photos courtesy of the Missouri Department of Agriculture.

#### D. Protecting Fuel Samples

Extreme care and good judgment are necessary to ensure the samples obtained are representative of the product being sold, assuring the test results are the same as if the sample had been tested immediately after it was taken. Samples should be kept cool or be cooled and protected from sunlight in order to minimize any potential reaction due to the light sensitivity of the sample. Samples of gasoline and JP-4 (which is not widely used) should be kept cool to prevent “light ends” from evaporating. Also, samples of fuels with lead additives must be protected from sunlight. It is necessary to protect all volatile samples of petroleum products from evaporation. In every situation the product sampled should be put directly into a sample container as soon as it is obtained. This must be done with vapor pressure samples. When it is necessary to obtain product with a sampling apparatus (or it is an undercover purchase in a consumer type gas can), or from an underground storage tank, transfer the product to a sample container immediately. If applicable, keep the containers and samplers closed except when material is being transferred. Never completely fill any container; allow adequate room for expansion by filling them to no more than 80 % capacity. To prevent the loss of liquid and vapors during transport, screw the caps of containers down tightly and check for leakage (check for leakage by tilting the container on its side and looking for fuel leaks around the cap or air bubbles entering the fuel).

*NOTE: Control temperature conditions. According to ASTM D4814 fuels should not be cooled below their dispensed temperatures or 15 °C (59 °F) because cooling of gasoline-oxygenate fuels can produce changes in appearance (e.g., hazing) that are not reversed on rewarming.*

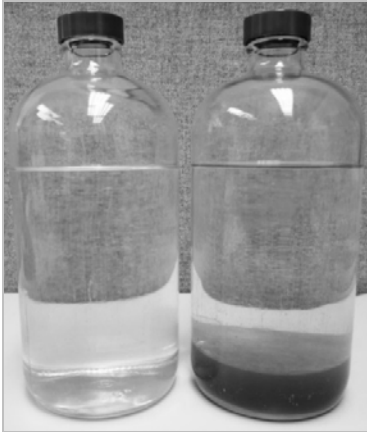
#### E. Visual Inspection – (Per ASTM D6751 and ASTM D4814-16a - 6. Workmanship)

Immediately examine the fuel sample to determine if it is clear and bright at the ambient temperature at the fuel temperature at the point of custody transfer or at a lower temperature agreed upon by the purchaser and seller. The fuel must be visually free of undissolved water, sediment, or suspended matter. If the fuel does not pass this visual inspection, a stop-sale order should be issued immediately.

Label and seal the containers immediately after the sample is obtained and place in a secure sample transport box for transportation to the fuel laboratory for testing. The official should RECHECK that every sample is accurately identified and documents are completed. If the lab receives a sample with missing or incomplete labels or documents, it will be rejected and disposed of without testing.

Figure 20. Visual Inspection of Samples.

PASS

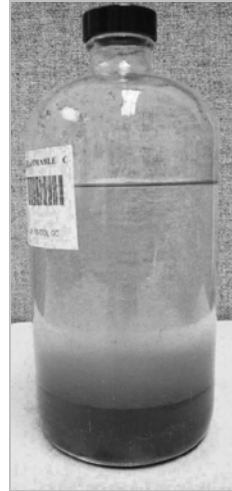


FAIL

Clean, Bright Sample Passes

Sample with Water Fails

PASS



FAIL

FAIL



PASS



## **F. Transporting Samples to Laboratory**

There are several approaches used to transport fuel and oil samples to a fuel laboratory. All are acceptable as long as the integrity of the chain-of-custody is documented.

- 1. Direct Delivery:** The official who collects the sample transports it directly to the laboratory and presents it for testing.
- 2. Public Carrier Delivery:** The official who collects the sample packs it in appropriate shipping cartons, labels them and delivers them to a public carrier who then transports the sample to the fuel laboratory for testing (or to a delivery point where a representative from the laboratory picks up the samples).
- 3. Laboratory Courier:** The officials who collect samples deliver them to a central consolidation point where a courier collects the samples and transports them to the fuel laboratory. These couriers are almost always employees of the fuel laboratory.

The collection of fuel samples requires that the fuel official receives a continuous supply of fresh sample containers, so it is important to set up a cost effective system that simplifies the transportation of fuel samples to the laboratory while at the same time ensures that it resupplies the field official.

## **G. Chain of Evidence (Custody) and Transfer**

A chain of evidence (custody) is a record of each person who has come into possession of the fuel sample from the time it is taken until the time the test results on the sample are presented as evidence in an administrative or judicial proceeding. A sample is in custody if it is in the official's possession or if it is under his or her control, or the control of another authorized person while stored in a secure location. A chain of evidence is the only means to prove that the sample presented in the proceeding is the one obtained at the location in question.

A record must be maintained which lists all those persons coming in possession of the evidence. This is particularly true when an analysis of fuel samples is to be made. It must be proven that there was no tampering with, alteration, or substitution of the sample between the time it was collected and the time of analysis by the fuel laboratory. The burden of proof is on the party offering the sample into evidence.

Fuel samples must be passed from the field person who obtained them to the laboratory personnel through a controlled process. When this takes place, the record must indicate to whom and when the sample was released. In other words, the chain of custody must be maintained. This means that the transfer of the sample must be documented each time, and that the record must remain with the sample. If this proof is not available, the sample and its analysis may be excluded from evidence.

Although an accurate and complete record is maintained of the chain of custody, it is still advisable that the samples go through as few people as possible. The fewer involved, the less chance there is the sample may be tampered with, altered, or lost. Also, should a case end up in court or administrative hearing, fewer witnesses will be needed to be called to establish the fact that the sample analyzed is the same fuel sample collected at the location. See ASTM D4840 "Standard Guide for Sample Chain-of-Custody Procedures" for more information. A sample of a Chain-of-Custody document is presented in Appendix C.

## **H. Timeliness of Samples**

Due to the velocity at which fuel is sold from a seller's tanks, a sample that is not analyzed and the results provided within 24 hours to 48 hours of its collection is of little value in stopping the sale of nonconforming fuel.

## **I. Respond to Test Results – Time is of the Essence.**

If a sample fails any laboratory test, immediate action must be taken to ensure the product is removed from sale. Follow-up oversight must verify that the seller has taken the appropriate corrective actions including determining and documenting the cause of the failure so it can be included in a program assessment to identify possibilities for changes in quality standards or handling and storage procedures. Timely testing of

all samples is a critical factor because, after subsequent deliveries occur, the sample is no longer representative of the product in the storage tank.

**1. If the sample passes:** No enforcement action is taken. The test reports are stored according to the record keeping requirements of the enforcement agency and the results are added to the compliance history of the seller and cross-referenced to the supplier. All test results are also incorporated into a summary of test results which can be analyzed and presented in (annual) reports detailing the benefits of fuel quality testing.

**2. If the sample fails:**

- a. **Recommended Engine Fuel Off-Sale Guidance:** Upon notification from the laboratory that a product sample did not meet specifications, the official should go to the location where the sample was obtained and contact the manager. It is also appropriate to issue an initial notification of an off-sale order by e-mail or by telephone to the location manager and, if appropriate, the corporate office if the retailer is a chain store outlet. E-mail notifications of test failures to the seller are the fastest way to prevent the sale of out of specification oil and initiating corrective actions.
- b. Report the test results for the sample, what the specifications for that product are, and what action is going to be taken. Refer questions about the test results to the management of the fuel program. Do not recommend how to correct or bring the failed fuel into compliance because the agency may be held liable should advice be found to be improper.

The official should:

- (1) If applicable, read and record the pump totalizers and determine the amount of oil in the storage tank from which the sample was originally taken.
- (2) If additional product has been added to the storage tank since the original sample was taken, resample the product, label and seal it and then send it to the laboratory for testing (or if applicable retest on-site).
- (3) If additional product has not been added to the storage tank since the sample was collected, label and seal the storage tank fill pipe(s) and/or dispenser(s) in accordance with agency policy.
- (4) Explain the agency's policy on the disposition of off-sale product (e.g., off-sale fuel cannot be sold and must be corrected or disposed of within 10 days of off-sale action). Leave a written copy of any instructions with the manager.
- (5) If the agency requires the official to be present when the off-sale fuel is to be removed from the tanks, the official should advise the seller to contact his or her office to make an appointment. When fuel storage tank(s) are to be pumped out, the official should check the tags and seals applied when the fuel was ordered off sale to see that they are intact. If they are not secure, the official should document his or her findings and take action according to agency policy or notify management. Also, the official should check the totalizer readings and measure the amount of fuel in the tank to determine if fuel has been removed. Break the seals and allow the fuel to be pumped out of the storage tank. Have the lines and filters flushed with sufficient complying fuel to assure all off-specification oil is removed before releasing the dispensers for use. It is sound procedure to obtain a sample of replacement fuel from the delivery truck and of the new product through the dispenser after it has been emptied into the storage tank so they can be tested to ensure the problem has been corrected.
- (6) **Verify Product Disposition:** The official should require the seller to provide a written explanation of how the off-sale fuel was disposed of. Some questions that may be asked are: How was sale of volatile product prevented? Was the product disposed of or returned to supplier? What documents or processes confirm the disposition? Was the process completed within 30 days of notice?

*NOTE: Examples of a Notice of Violation and a Stop Sale Order are provided in Appendix C.*

## VII. TESTING FOR WATER IN A FUEL STORAGE TANK

### A. Storage Tanks

According to the Steel Tank Institute, the installation of storage tanks and lax maintenance procedures used for water monitoring and removal can lead to a number of problems, from degradation of fuel quality and subsequent vehicle performance to damage of the storage system. This concern pertains to all storage systems, both underground and aboveground, regardless of the material used for their construction and irrespective of the fuel stored in the tank. According to Clean-Diesel Org (see <http://www.clean-diesel.org/>), not only is water a problem in itself, but it also creates the environment for biological growth within the fuel. Studies have revealed that less than 6.35 mm (0.25 in) of water is more than sufficient to promote microbial growth. Microorganisms live at the level of the fuel-water interface and feed on the fuel. The presence of microorganisms can lead to filter plugging, pump and injector problems, deactivation of the water monitor, and buildup within the tank, which is costly to remove.

It is recommended that a manual inspection for water be made on each storage tank at a location, and that every jurisdiction enforce the maximum water limits specified in their jurisdiction's laws or regulations such as those specified in NIST Handbook 130, Uniform Engine Fuels and Automotive Lubricants Regulation, Section 4. "Retail Storage Tanks and Dispenser Filters." While most modern storage tank monitoring systems have water monitoring features, those may not be accurate, so a manual measurement using a gauge stick with water finding paste and calibration chart are recommended. Officials should inspect each automatic system for the level of water in each storage tank and document the results on the inspection reports, and compare the automatic indication with the manual readings to indicate any significant differences that exist. Officials should take action based on the level determined using the stick and water paste that exceed the specified limits (i.e., order the water removed by a specified deadline and require seller to report completion of the removal). Whatever measuring device the official uses must be capable of measuring the fuel level over the full range of the tank's height to the nearest 3 mm ( $\frac{1}{8}$  in). If the storage system does not have an automatic monitoring system, it is recommended that the official conduct a manual inspection for water in each storage tank at each sample location and enforce the maximum water limits specified in their jurisdiction's laws or regulations such as those specified in NIST Handbook 130, Uniform Engine Fuels and Automotive Lubricants Regulation, Section 4. "Retail Storage Tanks and Dispenser Filters."

#### Section 4. Retail Storage Tanks

**4.1. *Water in Gasoline-Alcohol Blends, Biodiesel Blends, Ethanol Flex Fuel, Aviation Gasoline, and Aviation Turbine Fuel.*** –No water phase greater than 6 mm ( $\frac{1}{4}$  in) as determined by an appropriate detection paste or other acceptable means, is allowed to accumulate in any tank utilized in the storage of gasoline-alcohol blend, biodiesel, biodiesel blends, ethanol flex fuel, aviation gasoline, and aviation turbine fuel.

**4.2. *Water in Gasoline, Diesel, Gasoline-Ether, and Other Fuels.*** –Water shall not exceed 25 mm (1 in) in depth when measured with water indicating paste or other acceptable means in any tank utilized in the storage of diesel, gasoline, gasoline-ether blends, and kerosene sold at retail except as required in Section 4.1. *Water in Gasoline-Alcohol Blends, Biodiesel Blends, Ethanol Flex Fuel, Aviation Gasoline, and Aviation Turbine Fuel.*

1. **Equipment:** The Environmental Protection Agency specifies the following requirement for gauge sticks and other water measuring systems:

- 2. Gauge Stick or Other Gauges:** The gauge stick used to measure the depth of liquid in an underground tank must be clearly labeled in 3 mm ( $\frac{1}{8}$  in) graduations starting with zero at the bottom end. Inspect the stick to ensure the end has not been worn or cut off and that the stick is not warped. The stick should be made of non-sparking material, such as wood, and varnished to minimize the creeping of fuel above the actual fuel level in the tank. Whatever measuring device the official uses must be capable of measuring the fuel level over the full range of the tank's height to the nearest 3 mm ( $\frac{1}{8}$  in).
- 3. Water Finding Paste:** The best way to measure water is to use water-finding paste that is applied to the bottom of a gauge stick (when testing fuel that contains ethanol, use a water paste that is formulated for use with blend gasolines). Follow the paste manufacturer's directions for using the water paste, especially the amount of time the stick needs to be immersed in the fuel and what color change indicates the presence of water.

*NOTE: It is a good idea to take a photograph of the stick after applying the paste and another photo with the stick and a measuring tape laid next to it to indicate the water level if excessive water is found.*

*NOTE: Read the paste manufacturer's Safety Data Sheet for warnings and storage requirements, and follow the exposure controls and personal protection equipment requirements.*
- 4. Procedure:** The manual way of measuring the amount of water in an underground tank is with a wooden gauge stick. To take a reading, apply a thin film of the water finding paste on one side of the stick and its bottom and spread it uniformly over the surface to a height of 100 mm (4 in). Lower the stick gently to the bottom of the tank and let it sit for 5 seconds to 10 seconds (or follow the paste manufacturer's instructions if they differ from this recommendation) and then raise it quickly. Locate the paste and determine if there is any change in the color of the paste which would indicate that water is present. Record the number of millimeters (inches) to the nearest 3 mm ( $\frac{1}{8}$  in).

For manual gauging, if there is no separate gauge opening, the tank-fill drop tubes must have no obstruction at the end of the tube which will interfere with gauging of water. Be aware of drop tubes with "floating striker plates" – these devices won't show the lowest 19 mm (0.75 in) of the tank.

- 5. Action:** If the permitted water limit is exceeded, issue an order that the seller have the water removed.



Figure 21. Testing for Water.



Figure 22. Stick with Paste – No Water Indicated.

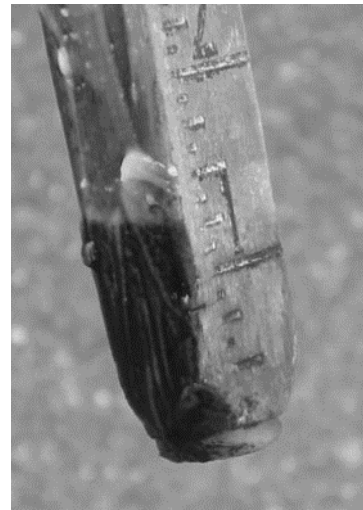


Figure 23. Sticks with Red Coloring that Shows Water Levels in Different Storage Tanks.

## VIII. LABELING ENFORCEMENT CHECKLIST AND SAMPLING PROCEDURE OUTLINE FOR TAKING SAMPLES OF MOTOR OIL AT SERVICE LOCATIONS

### A. Preparation

1. **Contact:** Officials should park their vehicle in a suitable location until they have notified the management of the business where sampling will occur of their identity, authority, and nature of the visit. When sampling at retail locations, is it often necessary to have the oil dispensers unlocked or air compressors started so samples can be taken. Officials must establish contact with the authorized

management representative and explain how samples will be taken and ensure that employees understand what is expected of them in assisting the official. It is management’s right to observe sampling procedures and to be present during the sample collection process if they choose to do so. This will allow the person to confirm the source of the oil and identity of the container and enable them to satisfy themselves that the sample container was properly sealed and purged product was returned to the proper storage.

**2. Business Information:** Obtain the business ownership and other identity information.

**3. Labeling:** Ensure that the label on any vehicle engine (motor) oil container, receptacle, dispenser, or storage tank is properly labeled. In addition, if remote tank filling ports are used, it is recommended that they be properly marked and secured. If there is any doubt, the official should ask the manager to indicate the location of the appropriate storage tank for each grade or brand of oil.

**B. Labeling and Documentation**

If the official’s state adopts the Uniform Method of Sale of Commodity Regulation in NIST Handbook 130, carry out an inspection according to Section 2.33 “Labeling of Vehicle Engine (Motor) Oil.”

**2.33. Oil.**

**2.33.1. Labeling of Vehicle Engine (Motor) Oil.** – *Vehicle engine (motor) oil shall be labeled.*

**2.33.1.1. Viscosity.** – *The label on any vehicle engine (motor) oil container, receptacle, dispenser, or storage tank, and any invoice or receipt from service on an engine that includes the installation of vehicle engine (motor) oil dispensed from a receptacle, dispenser, or storage tank, shall contain the viscosity grade classification preceded by the letters “SAE” in accordance with SAE International’s latest version of SAE J300, “Engine Oil Viscosity Classification.”*

**NOTE:** *If an invoice or receipt from service on an engine has limited room for identifying the viscosity, brand, and service category, then abbreviated versions of each may be used on the invoice or receipt and the letters “SAE” may be omitted from the viscosity classification.*

<b>2.33.1.1. Viscosity</b> – Are the following labeled with the viscosity grade classification preceded by the letters “SAE” in accordance with SAE International’s latest version of SAE J300, “Engine Oil Viscosity Classification?”		<b>Yes</b>	<b>No</b>	<b>Comments</b>
<b>a.</b>	Containers			
<b>b.</b>	Receptacles			
<b>c.</b>	Dispensers			
<b>d.</b>	Storage Tanks			
<b>e.</b>	Invoice or Receipts			

**2.33.1.2. Brand.** – *The label on any vehicle engine (motor) oil container and the invoice or receipt from service on an engine that includes the installation of bulk vehicle engine (motor) oil dispensed from a receptacle, dispenser, or storage tank shall contain the name, brand, trademark, or trade name of the vehicle engine (motor) oil.*

<b>2.33.1.2. Brand.</b> – Are the following labeled with the name, brand, trademark, or trade name of the vehicle engine (motor) oil?		<b>Yes</b>	<b>No</b>	<b>Comments</b>
<b>a.</b>	Containers			
<b>b.</b>	Receptacles			
<b>c.</b>	Dispensers			
<b>d.</b>	Storage Tanks			
<b>e.</b>	Invoice or Receipts			

**2.33.1.3. Engine Service Category.** – *The label on any vehicle engine (motor) oil container, receptacle, dispenser, or storage tank and the invoice or receipt from service on an engine that includes the installation of bulk vehicle engine (motor) oil dispensed from a receptacle, dispenser, or storage tank shall contain the engine service category, or categories, displayed in letters not less than 3.18 mm (1/8 in) in height, as defined by the latest version of SAE J183, “Engine Oil Performance and Engine Service Classification (Other than “Energy Conserving”),” API Publication 1509, “Engine Oil Licensing and Certification System,” European Automobile Manufacturers Association (ACEA), “European Oil Sequences,” or other Vehicle or Engine Manufacturer standards as approved in Section 2.33.1.3.1. “Vehicle or Engine Manufacturer Standard.”*

<b>2.33.1.3. Engine Service Category.</b> – Are the following labeled with the engine service category, or categories?		<b>Yes</b>	<b>No</b>	<b>Comments</b>
<b>a.</b>	Containers			
	Height of the letters at least 3.18 mm (1/8 in)?			
<b>b.</b>	Receptacles			
	Height of the letters at least 3.18 mm (1/8 in)?			
<b>c.</b>	Dispensers			
	Height of the letters at least 3.18 mm (1/8 in)?			
<b>d.</b>	Storage Tanks			
	Height of the letters at least 3.18 mm (1/8 in)?			
<b>e.</b>	Invoice or Receipts			
	Height of the letters at least 3.18 mm (1/8 in)?			

**2.33.1.3.1. Vehicle or Engine Manufacturer Standard.** – *The label on any vehicle engine (motor) oil container, receptacle, dispenser, or storage tank and the invoice or receipt from service on an engine that includes the installation of vehicle engine (motor) oil dispensed from a receptacle, dispenser, or storage tank shall identify the specific vehicle or engine manufacturer standard, or standards, met in letters not less than 3.18 mm (1/8 in) in height. If the vehicle (motor) oil only meets a vehicle or engine manufacturer standard, the label must clearly identify that the oil is only intended for use where specifically recommended by the vehicle or engine manufacturer.*

<b>2.33.1.3.1. Vehicle or Engine Manufacturer Standard.</b> – Are the following labeled with the specific vehicle or engine manufacturer standard, or standards the oil meets? <b>NOTE:</b> If the oil only meets a vehicle or engine manufacturer standard, the label must clearly identify that the oil is only intended for use where specifically recommended by the vehicle or engine manufacturer.		<b>Yes</b>	<b>No</b>	<b>Comments</b>
<b>a.</b>	Containers			
	Height of the letters at least 3.18 mm (1/8 in)?			
<b>b.</b>	Receptacles			
	Height of the letters at least 3.18 mm (1/8 in)?			
<b>c.</b>	Dispensers			
	Height of the letters at least 3.18 mm (1/8 in)?			
<b>d.</b>	Storage Tanks			
	Height of the letters at least 3.18 mm (1/8 in)?			
<b>e.</b>	Invoice or Receipts			
	Height of the letters at least 3.18 mm (1/8 in)?			

**2.33.1.3.2. Inactive or Obsolete Service Categories.** – *The label on any vehicle engine (motor) oil container, receptacle, dispenser, or storage tank and the invoice or receipt from service on an engine that includes the installation of bulk vehicle engine (motor) oil dispensed from a receptacle, dispenser, or storage tank shall bear a plainly visible cautionary statement in compliance with the latest version of SAE J183, Appendix A, whenever the vehicle engine (motor) oil in the container or in bulk does not meet an active API service category as defined by the latest version of SAE J183, “Engine Oil Performance and Engine Service Classification (Other than “Energy Conserving”).” If a vehicle engine (motor) oil is identified as only meeting a vehicle or engine manufacturer standard, the labeling requirements in Section 2.33.1.3.1. Vehicle or Engine Manufacturer Standard applies.*



<b>2.33.1.3.2. Inactive or Obsolete Service Categories.</b> – Do the following bear a cautionary statement in compliance with the latest version of SAE J183, Appendix A, whenever the vehicle engine (motor) oil in the container or in bulk does not meet an active API service category as defined by the latest version of SAE J183, “Engine Oil Performance and Engine Service Classification (Other than “Energy Conserving”).” If a vehicle engine (motor) oil is identified as only meeting a vehicle or engine manufacturer standard, the labeling requirements in Section 2.33.1.3.1. Vehicle or Engine Manufacturer Standard applies.		<b>Yes</b>	<b>No</b>	<b>Comments</b>
<b>a.</b>	Containers			
	Is the cautionary statement plainly visible?			
<b>b.</b>	Receptacles			
	Is the cautionary statement plainly visible?			
<b>c.</b>	Dispensers			
	Is the cautionary statement plainly visible?			
<b>d.</b>	Storage Tanks			
	Is the cautionary statement plainly visible?			
<b>e.</b>	Invoice or Receipts			
	Is the cautionary statement plainly visible?			

**2.33.1.4. Tank Trucks or Rail Cars.** – Tank trucks, rail cars, and other types of delivery trucks that are used to deliver bulk vehicle engine (motor) oil are not required to display the SAE viscosity grade and service category or categories on such tank trucks, rail cars, and other types of delivery trucks.

**2.33.1.5. Documentation.** – When the engine (motor) oil is sold in bulk, an invoice, bill of lading, shipping paper, or other documentation must accompany each delivery. This document must identify the quantity of bulk engine (motor) oil delivered as defined in Sections 2.33.1.1. Viscosity; 2.33.1.2. Brand; 2.33.1.3. Engine Service Category; the name and address of the seller and buyer; and the date and time of the sale. For inactive or obsolete service categories, the documentation shall also bear a plainly visible cautionary statement as required in Section 2.33.1.3.2. Inactive or Obsolete Service Categories. Documentation must be retained at the retail establishment for a period of not less than one year.

<b>2.33.1.5. Documentation Requirements</b>		<b>Yes</b>	<b>No</b>	<b>Comments</b>
<b>a.</b>	<b>Invoice</b>			
i.	Does the seller provide an invoice?			
ii.	Is the date and time of sale included?			
iv.	Is the seller name and address included?			
v.	Is the buyer name and address included?			
vi.	Does it identify the quantity of bulk oil delivered?			
vii.	2.33.1.1. Viscosity. – Does it include the viscosity grade classification preceded by the letters “SAE” in accordance with SAE International’s latest version of SAE J300, “Engine Oil Viscosity Classification”?			

<b>2.33.1.5. Documentation Requirements</b>		<b>Yes</b>	<b>No</b>	<b>Comments</b>
viii.	2.33.1.2. Brand. – Does it include the name, brand, trademark, or trade name of the vehicle engine (motor) oil?			
ix.	2.33.1.3. Engine Service Category. – Does it include engine service category, or categories?			
x.	2.33.1.3.2. Inactive or Obsolete Service Categories. – If applicable, includes a cautionary statement in compliance with the latest version of SAE J183, Appendix A.			
xi.	Is the document retained at retail business for at least one year?			
<b>b. Bill of Lading</b>				
i.	Does the seller provide a Bill of Lading?			
ii.	Is the date and time of sale included?			
iv.	Is the seller name and address included?			
v.	Is the buyer name and address included?			
vi.	Does it identify the quantity of bulk oil delivered?			
vii.	2.33.1.1. Viscosity. – Does it include the viscosity grade classification preceded by the letters “SAE” in accordance with SAE International’s latest version of SAE J300, “Engine Oil Viscosity Classification”?			
viii.	2.33.1.2. Brand. – Does it include the name, brand, trademark, or trade name of the vehicle engine (motor) oil?			
ix.	2.33.1.3. Engine Service Category. – Does it include the engine service category, or categories?			
x.	2.33.1.3.2. Inactive or Obsolete Service Categories. – If applicable, includes a cautionary statement in compliance with the latest version of SAE J183, Appendix A.			
xi.	Is the document retained at retail business for at least one year?			
<b>c. Shipping paper or other documentation.</b>				
i.	Does the seller provide other shipping paper?			
ii.	Is the date and time of sale included?			
iv.	Is the seller name and address included?			
v.	Is the buyer name and address included?			
vi.	Does it identify the quantity of bulk oil delivered?			
vii.	2.33.1.1. Viscosity. – Does it include the viscosity grade classification preceded by the letters “SAE” in accordance with SAE International’s latest version of SAE J300, “Engine Oil Viscosity Classification”?			
viii.	2.33.1.2. Brand. – Does it include the name, brand, trademark, or trade name of the vehicle engine (motor) oil?			
ix.	2.33.1.3. Engine Service Category. – Does it include the engine service category, or categories?			
x.	2.33.1.3.2. Inactive or Obsolete Service Categories. – If applicable, includes a cautionary statement in compliance with the latest version of SAE J183, Appendix A.			

2.33.1.5. Documentation Requirements		Yes	No	Comments
xi.	Is the document retained at retail business for at least 1 year?			
xii.	Does the seller provide an invoice?			

**3.13.2. Labeling of Recreational Motor Oil.**

**3.13.2.1. Viscosity.** – *The label on each container of recreational motor oil shall contain the viscosity grade classification preceded by the letters “SAE” in accordance with the SAE International’s latest version of SAE J300, “Engine Oil Viscosity Classification.”*

**3.13.2.2. Intended Use.** – *The label on each container of recreational motor oil shall contain a statement of its intended use in accordance with the latest version of SAE J300, “Engine Oil Viscosity Classification.”*

3.13.2. Labeling of Recreational Motor Oil.		Yes	No	Comments
<b>3.13.2.1. Viscosity.</b> –The label on each container of recreational motor oil shall contain the viscosity grade classification preceded by the letters “SAE” in accordance with the SAE International’s latest version of SAE J300, “Engine Oil Viscosity Classification.”				
a.	Containers: Is the viscosity grade classification provided and is it preceded by the letters “SAE.”			

3.13.2. Labeling of Recreational Motor Oil.		Yes	No	Comments
<b>3.13.2.2. Intended Use.</b> – The label on each container of recreational motor oil shall contain a statement of its intended use in accordance with the latest version of SAE J300, “Engine Oil Viscosity Classification.”				
a.	Containers: Does the label contain a statement of its intended use?			

**C. Payment for Samples**

In most jurisdictions, the official is obligated to pay the retail value of the product if a fuel sample is taken from a place of business where it can be sold legally unless the sample is being collected pursuant to a search warrant, or the fuel’s owner surrenders the sample at no cost.

<p><b>PAYMENT RECEIPT</b></p> <p><b>Agency Responsible for Engine Fuel Quality</b></p> <p style="text-align: center;">Address, City, State, Zip</p> <p style="text-align: center;">Telephone, E-mail, URL</p>		
<b>Seller's Name:</b>	<b>Address:</b>	<b>Date:</b>
<p>Received \$ _____ as payment for the fuel or oil samples described below taken for inspection purposes as provided for by Chapter xx-xx of the Code of the State of _____.</p> <p style="text-align: right; margin-top: 20px;">_____ Signature of Business Representative</p>		
<b>Sample Taken:</b>	<b>Official:</b>	

**D. Taking Oil Samples**

**1. Packaged Engine (Motor) Oil:** Motor oil is typically packaged in 946 mL (1 qt) and larger containers. Sample packages are usually taken at retail locations from a lot of containers offered for sale on the shelf. To obtain a sample of packaged motor oil, select one package from the lot and either purchase it or provide the seller with an evidence receipt. Apply a sample identity label (do not cover label information) to the package and document the business location, date, time of purchase, identity, and other information about the sample on an official report form, and document the chain-of-custody. Secure, protect, and ship or transfer to the quality laboratory.

**2. Nozzle Samples.**

**a. Sample Container and Sample Size:** Use a clean sample container that has a secure cap. See the following table.

<b>Suggested Container Types and Minimum Sample Sizes for Motor Oil</b>					
Product	Container Material				Minimum Sample Size
	Glass	Aluminum	Metal	FHDPB "Plastic" <sup>1</sup>	
<b>Engine (motor) Oil – General</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	1 L
<p><i><b>NOTE 1:</b> Fluorinated High-Density Polyethylene Bottles (FHDPB) are available in wide mouth sizes and are fluorinated inside and outside for improved barrier properties and reduced solvent absorption and penetration. Fluorination enhances long-term container performance and prevents or reduces permeation loss. Useful with most aggressive organic solvents, they are durable and puncture-resistant.</i></p>					

**b. Sample Collection**

**c. Identifying Samples for Traceability:** The following information illustrates the type of information typically collected for an oil sample. It is acceptable to either permanently mark the sample container with a unique identifying number or to apply a label to the container with a unique number. An Oil Sample Data Sheet should be prepared and included with the sample in a shipping container or sample case. This information can also be collected directly in a database or entered on a data sheet. Regardless of the system used, the following is a compilation of the information usually collected for an oil sample.


Examples of Entries on an Oil Sample Data Sheet		
	Item	Entry
1.	Sample number/unique container identity	Enter the sample container's unique identifier number. Each sample must have a unique identifier such as a number or alpha numeric code so that its handling can be traceable and so that all collection reports and laboratory tests are linked to the original sample.
2.	Product Identification – Viscosity grade, Service Category	} Obtained from device label, tank marking, or bill of lading.
3.	Brand	
4.	Sampling location identity	Enter business name, identifier number (this may be assigned by the fuel regulatory agency), address of sample location, business mail address, agent name, telephone, fax, and email. This information may be used to immediately notify the seller to remove the oil from sale if the sample fails.
5.	Sampled lot	Amount of oil that the sample represents. Total liters or gallons in the source oil storage tank represented by the sample.
6.	Supplier(s) of oil	Enter the name of the supplier or suppliers of the oil in the source storage tank.
7.	Date of last oil delivery to storage tank.	Enter the day of the latest delivery of the oil into the storage tank from which the sample was taken.
8.	Sample Taken by	Name (or identifier number) of the official who took the sample.
9.	Source of sample	Identify the specific source of the sample (e.g., dispenser number, storage tank number or location, or license number of tank truck and compartment number).
10.	Date/Time sample collected	Enter the time of day, day, month and year indicating when the sample was collected.
11.	Sample Type	Nozzle or other collection method
12.	Notes/Safety Notice 	Enter weather conditions and any remarks necessary to accomplish the analysis of the sample. Safety warning label.
13.	Security Seal(s)	Enter the identification number of any security seal applied to a sample container or transport case.



Figure 24. Brand and Viscosity on a Dispenser.



Figure 25. Taking Oil Samples – Metal Cans.

*Photo courtesy of North Carolina Department of Agriculture and Consumer Services.*

#### d. Sampling

- (1) **Sample Taken from a Measuring Device that Dispenses a Single Product:** Typically no flushing is required for these single product nozzle-hose combinations if they are protected from contamination. If the official is taking a sample from an oil dispenser covered with an accumulation of dirt and oil, take care to clean the nozzle to ensure that dirt and debris are not introduced to the container. It may be necessary to first run enough oil into another container to ensure the nozzle is dispensing uncontaminated oil.

When bulk storage is used, one aspect to look at is the accuracy and clarity of the markings of storage tanks and remote fill openings to avoid the possibility of cross-mixing or contamination. Storage conditions affect the shelf-life of most lubricants so officials should determine if the seller is aware of the manufacturer's recommendations. If no shelf-life guidance is provided and the lubricant is greater than two-years old, the seller should contact the manufacturer for guidance about the suitability of the oil for use. Most oils are not affected by normal storage temperatures but sometimes storage tanks can be located too near heat sources, which may create situations that cause oil additives to oxidize prematurely.

- Operate oil meters/fillers manually and do not use automatic pre-set delivery features when collecting oil samples.
- If the oil meter/filler control is equipped with a totalizing device, the official should record the product identity and the before and after readings on the sample collection report.

### CAUTION

**SKIN INJECTION HAZARD:** Some oil delivery systems operate under high-pressure. Fluids spraying from dispenser valves, hose leaks, or ruptured components may send out spray that may pierce skin and cause serious injuries and long term health consequences (e.g., oil, chemicals and dirt can be injected under the skin). The official should wear personal protective equipment and, should an injury occur, he or she should seek immediate medical attention. The official should never point a dispenser valve at anyone or at any part of his or her body or put a hand over the end of a nozzle while opening or operating the flow valve regardless of its operating pressure.

- i. The official may hold the sample container or place it on a solid level surface adjacent to the dispenser.

The official should then:

- ii. Use a cotton rag to wipe and clean the parts of the nozzle that comes into contact with the sample container and oil sample.
- iii. Ensure the dispenser is operational (e.g., air supply is turned on) and, if required, have the dispenser authorized.
- iv. Place the nozzle/outlet in the sample container and fill it slowly. Continue until it is filled to the specified volume (or the dispenser indicates the quantity specified for the sample).
- v. Seal the sample container and mark as required.
- vi. Record the sample information on an official report and document the details needed to start the chain of custody process.
- vii. Issue a Notice of Violation for any labeling violations found during the inspection. An example of a Notice of Violation is provided in Appendix C.

**e. Protecting and Transporting the Sample**

- (1) **Protecting Samples:** The samples should be kept cool and be protected from ultraviolet light to prevent deterioration and mishandling. A shipping carton or hard-shell sample transport case similar to those used to protect fuel samples may be used.
- (2) **Transporting Samples:** Transport the sample and related documentation to the quality laboratory in a timely manner in accordance with agency procedures. This is important because, after subsequent deliveries occur, the sample is no longer representative.

**f. Documentation – Collecting Information:** Throughout a visit, it is important that officials collect information about device labeling and other signage to document the identity and other claims made by a seller about the oil being sampled. It is good to record a brief description of actions and observations as well as recording any relevant information provided by the seller. Taking notes, photographs and keeping logs, provide permanent records of a sampling activity and facilitate enforcement.

**g. Follow through actions:** See IX. “Respond to Test” In the fuel sampling outline for guidance on how to respond to test results and initiating stop sale actions.

## APPENDIX A. – MONTHLY SAFETY AND HEALTH EQUIPMENT CHECKLIST

<b>Safety and Health Equipment Checklist</b>				
<b>Notice:</b> Reorder replacements immediately after they are used or damaged.				
<b>Date:</b>		<b>Official:</b>		
	<b>Item:</b>	<b>Inspected</b>	<b>Replace</b>	<b>Comment:</b>  <ul style="list-style-type: none"> <li>• Condition?</li> <li>• What type or brand is needed and how many?</li> </ul>
		✓	✗	
1.	Safety Clothing/Vest			
2.	Steel-Toed Shoes or Boots			
3.	Eye/Face Protection			
4.	Gloves			
5.	Respirator/Filters, Dust Mask			
6.	Eye-Wash Kit and Solution			
7.	Safety Flashlight/Batteries			
8.	Safety/Non-sparking Tools			
9.	Traffic Cones			
10.	Fire Extinguisher (recharge or replace immediately after use)			Expiration Date:
11.	First-Aid Kit			
12.	Safety Fuel Storage Can			
13.	Digital Camera (data card/battery)			
14.	Oil Spill Kit – (absorbent , wipes)			
15.	Lint Free Wiping Cloths			
16.	Vehicle Emergency Triangles			
17.	Rain Suit/Weather Clothing			
18.	Hardhat			
19.				
20.				
21.				
22.				
23.				



**Safety and Health Equipment Checklist**

**Notice:** Reorder replacements immediately after they are used or damaged.

<b>24.</b>	Other Equipment Needed:			
<b>25.</b>	Other Supplies Needed:			

**Questions:**

- Does the equipment fit properly and is it clean, sanitary and serviceable?
- Are there rips, tears, or cuts that reduce usability of the item?
- Does it require regular replacement or recharging? Is it stored properly and is it easily accessible?
- Have you been trained in proper use?
- Have you read the Safety Data Sheets (SDSs) for fuel products within the last 180 days?

## APPENDIX B. – EXAMPLES OF FUEL SAMPLING AND CHAIN-OF-CUSTODY REPORTS

GEORGIA DEPARTMENT OF AGRICULTURE  
 FUEL OIL LABORATORY  
 3150 HWY 41 SOUTH TIFTON, GA 31794 (229) 386-3486

<b>Sample Priority</b> ROUTINE	<b>Facility Name</b> FOOD MART	<b>Supplier Name</b> BILL'S PETROLEUM PRODUCTS	
<b>Collection Date</b> 12/4/13	<b>Street Address</b> 2091 W ROBINSON ROAD	<b>Street Address</b>	<b># Tanks</b> 2
<b>Inspector</b> F. Official	<b>Mailing Address</b>	<b>Mailing Address</b>	<b># Products</b> 3
<b>Inspection area</b> 20	<b>City</b> LEOVILLE	<b>City</b> MARYDALE	<b># Brands</b> 1
<b>County #</b> 037-COOK	<b>State</b> GA	<b>State</b> GA	<b>Special Mailing</b>
<b>Facility #</b> 229-654-1909	<b>Zip Code</b> 31637	<b>Zip Code</b> 31792	<b>Changes Needed</b>
<b>Lab Sample Date</b>	<b>Facility Code #</b> 134332542	<b>Telephone #</b> 240-216-8354	
<b>Est. Type</b> 832	<b>Lab Number</b> 2	<b>Lab Number</b> 3	<b>Lab Number</b> 4
<b>Bottles # (s)</b>	<b>Prod Code</b> 50-REG E-10	<b>Prod Code</b> 52-PRM E-10	<b>Prod Code</b> 5
<b>Product</b>	<b>Brand Code</b> H117	<b>Brand Code</b> 794A	<b>Brand Code</b>
<b>Posted Volume</b>	<b>SAMPLE #11</b> REGULAR - 87 E-10	<b>SAMPLE #12</b> MIDGRADE - 89 E-10	<b>Results Code</b>
<b>Brand</b>	<b>INDEPENDENT</b>	<b>INDEPENDENT</b>	<b>Results Code</b>
<b>Clear &amp; Bright</b>	<b>C &amp; B</b>	<b>C &amp; B</b>	<b>Results Code</b>
<b>Sampled Via</b>	<b>G410A</b>	<b>G410A</b>	<b>Results Code</b>
<b>Inspector Remarks</b>	<b>SINGLE HOSE DISPENSER</b>	<b>SINGLE HOSE BLEND</b>	<b>SINGLE HOSE DISPENSER</b>
<b>Additional Remarks</b>			
<b>Lab Results</b>			
<b>Chemist Remarks</b>			
<b>Copy Mailed Party</b>			
<b>Telephone Notification Party</b>			
<b>Follow-Up Remarks</b>			

Sample Collected and Summary Report  
 AG FORM 007 - (08/2010)



MISSOURI DEPARTMENT OF AGRICULTURE  
 DIVISION OF WEIGHTS AND MEASURES  
**MOTOR FUEL QUALITY INSPECTION**  
 TELEPHONE (573) 751-2922 FAX: (573) 751-8307

ID NO.		STATUS		SALES TAX NO.		DNR LIST NO.		LATITUDE		LONGITUDE		TYPE OF INSPECTION <input type="checkbox"/> ROUTINE <input type="checkbox"/> FOLLOW UP <input type="checkbox"/> COMPLAINT <input type="checkbox"/> OFFICE REQUEST <input type="checkbox"/> OTHER		FACILITY TYPE: <input type="checkbox"/> Service Station <input type="checkbox"/> Key/Card Attended <input type="checkbox"/> Key/Card Unattended <input type="checkbox"/> Bulk Plant		MARINA <input type="checkbox"/> Marina <input type="checkbox"/> Airport <input type="checkbox"/> Other		FOR OFFICE USE ONLY DATE RECEIVED SEALS INTACT RECEIVED BY NOTES			
BUSINESS NAME		BUSINESS CONTACT		TITLE		SUPPLIER		CITY		TELEPHONE		SUPPLIER		CITY		TELEPHONE					
ADDRESS		ADDRESS		CITY		STATE		ZIP CODE		BRAND		WEATHER CONDITIONS		PRICE PER GALLON		QTY. PURGED GAL		SAMPLE QTY. TAKEN \$			
CITY		STATE		ZIP CODE		CITY		STATE		ZIP CODE		CITY		STATE		ZIP CODE		CITY		STATE	
COUNTY		CITY		STATE		ZIP CODE		CITY		STATE		ZIP CODE		CITY		STATE		ZIP CODE		CITY	
TELEPHONE		FAX		TELEPHONE		FAX		TELEPHONE		FAX		TELEPHONE		FAX		TELEPHONE		FAX		TELEPHONE	
EMAIL		EMAIL		ALC/BIO LABELING		POSTED OCTANE		TANK OR PUMP NO.		GALLONS ON HAND		WATER/STORAGE AST		LAST DELIVERY		PRICE PER GALLON		QTY. PURGED GAL		SAMPLE QTY. TAKEN \$	
LAB NUMBER		FILTERS NO.		SIZE		ETH		BIO		GALLONS ON HAND		WATER/STORAGE AST		LAST DELIVERY		PRICE PER GALLON		QTY. PURGED GAL		SAMPLE QTY. TAKEN \$	
CONTAINER NUMBERS		PROD. CODE		NAME OF ADV. PRODUCT		ALC/BIO LABELING		POSTED OCTANE		TANK OR PUMP NO.		GALLONS ON HAND		WATER/STORAGE AST		LAST DELIVERY		PRICE PER GALLON		QTY. PURGED GAL	
REMARKS		LAB NOTES		INSPECTOR SIGNATURE		INSPECTION DATE		TIME		REPORT RECEIPT ACKNOWLEDGMENT											

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## APPENDIX C. – EXAMPLES OF NOTICE OF VIOLATION AND STOP SALE REPORTS

NORTH CAROLINA DEPARTMENT OF AGRICULTURE & CONSUMER SERVICES  
STANDARDS DIVISION

Station Name \_\_\_\_\_

Address \_\_\_\_\_

Inspection No. \_\_\_\_\_ Date \_\_\_\_\_

In order to secure representative samples for inspection purposes, quantities of product as indicated below were drawn through dispensers and returned to the appropriate storage tanks.

Product	Amount
1. _____	(    ) gal.                    (\$ . . )
2. _____	(    ) gal.                    (\$ . . )
3. _____	(    ) gal.                    (\$ . . )
4. _____	(    ) gal.                    (\$ . . )
5. <b>Total</b>	(    ) gal.                    (\$ . . )

Remarks: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Signed: \_\_\_\_\_ Owner or Agent

\_\_\_\_\_ Inspector







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## **APPENDIX D. – REFERENCES AND ACKNOWLEDGMENTS**

1. “Fuel and Fuel System Microbiology: Fundamentals, Diagnosis, and Contamination Control” (2003) – (47 pages) Frederick J. Passman, Editor. ASTM International Manual Series: Manual 47.
2. “Petroleum Laboratory Testing and Operations” (1997) – Field Manual 10-67-2 Headquarters Department of the Army.
3. NCWM Publication 21 – “Petroleum Products – Sampling Procedures and Safety Manual” (1997) – National Conference on Weights and Measures.
4. NFPA 77 “Recommended Practice on Static Electricity” (2014) – National Fire Protection Association.
5. API Recommended Practice 2003 – 7<sup>th</sup> Edition “Protections Against Ignitions Arising Out of Static, Lightning and Stray Currents” (2008).
6. ASTM D6759 - 09 “Standard Practice for Sampling Liquids Using Grab and Discrete Depth Samplers”
7. “Biodiesel Handling and Use Guide” (4<sup>th</sup> Edition) (2009) – National Renewable Energy Laboratory - REL/TP-540-43672
8. “7-29 Ignitable Liquid Storage in Portable Containers” – Factory Mutual - Global Property Loss Prevention Data Sheets – Access free with registration and available at <https://www.fmglobal.com/FMGlobalRegistration/Default.aspx> . This site was accessed on 10/30/2014.
9. Underwriters Laboratory # 30 “Standard for Metal Safety Cans.” This standard is available at <http://ul.com/> Accessed 10/30/2014.
10. “Methanol Safe Handling Manual” (2013). This manual was published by the Methanol Institute and it is available at <http://www.methanol.org/Health-And-Safety/Safe-Handling/Methanol-Safe-Handling-Manual.aspx> . This site was accessed on 10/30/2014.
11. ASTM D5842-14 - “Manual of Petroleum Measurement Standards (MPMS) Chapter 8.4” & ASTM D5842 - “Standard Practice for Sampling and Handling of Fuels for Volatility Measurement.”
12. Manual of Petroleum Measurement Standards – Chapter 8.1 “Standard Practice for Manual Sampling of Petroleum and Petroleum Products” Fourth Edition (2013). American Petroleum Institute.
13. “Aviation Fuels Technical Review (FTR-3)” – (2004) Chevron Global Aviation – Chevron Products Company, Houston Texas.
14. “Draft Fuel Sampling Procedures” (2013) – Written by the Colorado Division of Oil and Public Safety.
15. ASTM D4840-99 (2010) “Standard Guide for Sample Chain-of-Custody Procedures.”
16. ASTM D5854-15 “Standard Practice for the Mixing and Handling of Liquid Samples of Petroleum and Petroleum Products.” (2015)
17. NIST Handbook 44 “Specifications Tolerances and other Technical Requirements for Commercial Weighing and Measuring Devices” (2016).

18. European Standard – I.S. EN 14275:2013 “Automotive Fuels - Assessment of Petrol and Diesel Fuel Quality - Sampling from Retail Site Pumps and Commercial Site Fuel Dispensers” (2013).
19. European Standard – I.S. EN ISO 3170:2004 “Petroleum Liquids – Manual Sampling” (2004).
20. Training Module – Twelve: “Petroleum Products.” This training document was published by the California Division of Measurement Standards (2002).
21. Australia – Division 5.2 Under Subsection 58(A) procedures related to the collection of fuel samples (2013).
22. Standard Operating Procedure – Seven – “Sample Preservation, Storage, Handling and Documentation.” This is a publication of the U.S. Environmental Protection Agency (Revision 2.0, 2003).
23. Chain of Custody Form (COC) - Colorado Department of Labor and Employment – Division of Oil and Public Safety. This form is provided in this handbook as an example.
24. API Standard 1512 (1<sup>st</sup> Edition) “Petroleum Test Laboratory Accreditation Program” (October 1995). This standard is published by the American Petroleum Institute.
25. ASTM D4814 – 16a “Standard Specification for Automotive Spark-Ignition Engine Fuel.” (2016)
26. ASTM D4306 – 15 “Standard Practice for Aviation Fuel Sample Container for Tests Affected by Trace Contamination” (2015).
27. ASTM D4953 – 15 “Standard Test Method for Vapor Pressure of Gasoline and Gasoline-Oxygenate Blends (Dry Method) (2015).
28. NIST Handbook 130 “Uniform Laws and Regulations in the Areas of Legal Metrology and Engine Fuel Quality” (2016).
29. “Ethanol-Water Phase Separation White Paper” by Samir Jain. Published by Veeder-Root. Accessed at <http://nationalpetroleum.net/Ethanol-Water-Phase-Separation-facts.pdf> on December 11, 2014.
30. “Keeping Water Out of Your Storage System.” Steel Tank Institute (2005). Accessed on December 12, 2014, at [http://www.steeltank.com/Portals/0/pubs/KeepingWaterOutOfYourStorageSystem\\_updated%202\\_2\\_.pdf](http://www.steeltank.com/Portals/0/pubs/KeepingWaterOutOfYourStorageSystem_updated%202_2_.pdf)
31. “Guidance for Underground Storage Tank Management at ULSD Dispensing Facilities” by Clean-Diesel Org. Accessed on December 12, 2014 at [http://www.clean-diesel.org/pdf/GuidanceforUndergroundStorageTankManagement\\_FINAL.pdf](http://www.clean-diesel.org/pdf/GuidanceforUndergroundStorageTankManagement_FINAL.pdf)
32. “Operating and Maintaining Underground Storage Tank Systems: Practical Help and Checklists” by the Environmental Protection Agency. Accessed on December 12, 2014 at <http://www.epa.gov/oust/pubs/ommanual.htm>
33. “Manual Tank Gauging – For Small Underground Storage Tanks” by the Environment Protection Agency. Accessed on December 12, 2014 at <http://www.epa.gov/swerust1/pubs/manltank.pdf>
34. “Tank Smart – Daily Inventory and Statistical Inventory Analysis.” Module 11 – Maine Department of Environmental Protection. Accessed on December 12, 2014 at [http://www.maine.gov/dep/waste/tanksmart/documents/TankSmart\\_Mod.11\\_DI&SIA.pdf](http://www.maine.gov/dep/waste/tanksmart/documents/TankSmart_Mod.11_DI&SIA.pdf)
35. Photos – several of the photographs of fuel and fuel and water mixtures and field sampling equipment were provided by the Missouri Department of Agriculture’s Fuel Quality Program.

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36. Sample Collection and Summary Report – Courtesy of the Georgia Department of Agriculture – Fuel Oil Laboratory.
37. ASTM D6224-09 “Standard Practice for In-Service Monitoring of Lubricating Oil for Auxiliary Power Plant Equipment.”
38. API 1525A “Bulk Engine Oil Chain of Custody and Quality Documentation.” First Edition, (2012).
39. “Crime Scene Investigation – A Guide for Law Enforcement” (2013). National Forensic Science Technology Center in which NIST participants.
40. ASTM D7464-14 “Standard Practice for Manual Sampling of Liquid Fuels, Associated Materials and Fuel System Components for Microbiological Testing.”
41. Material Safety Data Sheet – “High Mileage Motor Oil 10W30” from the Valvoline Company.
42. ASTM D2699-15a “Standard Test Method for Research Octane Number of Spark-Ignition Engine Fuel.”
43. ASTM D2700-16 “Standard Test Method for Motor Octane Number of Spark-Ignition Engine Fuel.”