

**NIST, Office of Weights and Measures**  
**Study Guide**  
**for**  
**Packaging and Labeling Inspections**  
**and Method of Sale**

NIST OWM Study Guides are designed for use by weights and measures officials and service personnel to enhance and strengthen their knowledge of specific areas of legal metrology inspection and testing. These study guides are not intended to be a comprehensive summary of *all* training and development opportunities recommended for inspectors working in a specific topic area. Rather, they are intended to help individuals in their professional development by targeting the use of information and resources available on the NIST OWM website. Study guides are particularly ideal for use by individuals who are working remotely and are striving to enhance and strengthen their technical knowledge.

Included in this study guide are:

- An overview of resources available on the NIST OWM website, including self-study course material; videos; and newsletter articles and guidance documents on legal metrology issues.
- Suggestions for how each of these resources might be used for either independent, individual study or by groups of inspectors/service personnel led by an instructor or supervisor.
- Information on other training opportunities, including both on-line training and in-person instructor-led training and other resources for professional development.

We hope you find this guide useful in your continued development as a legal metrology professional. Please contact NIST OWM at [owm@nist.gov](mailto:owm@nist.gov) if you have questions about this guide or suggestions for its improvement.

**I. Reference Documents**

The following provides links on the NIST OWM website to the current editions of NIST Handbooks and/or other documents specifically relevant to the inspection and testing of packaged goods. These documents are available for viewing or downloading at no charge. Some documents are available for download either in entirety or in individual sections. Note that your state may adopt earlier editions of the NIST Handbooks.

1. **NIST HB 130, *Uniform Laws and Regulations in the Areas of Legal Metrology and Fuel Quality***

**Current Edition:**

<https://www.nist.gov/pml/weights-and-measures/publications/nist-handbooks/other-nist-handbooks/other-nist-handbooks-2-1>

**Earlier Editions from 2005 to Current:**

<https://www.nist.gov/pml/weights-and-measures/publications/nist-handbooks/other-nist-handbooks/other-nist-handbooks-2>

2. **NIST Handbook 133, *Checking the Net Contents of Packaged Goods***

**Current Edition:**

<https://www.nist.gov/pml/weights-and-measures/publications/nist-handbooks/other-nist-handbooks/other-nist-handbooks-2-0>

**Earlier Editions from 1986 to Current:**

<https://www.nist.gov/pml/weights-and-measures/publications/nist-handbooks/other-nist-handbooks/other-nist-handbooks-2>

**II. Newsletter Articles – NIST OWM**

NIST OWM staff have developed newsletter articles on a variety of technical topics over the years; many of these articles are available for review and/or download from the NIST OWM web site. The following articles, listed alphabetically by topic along with the NIST OWM web site link, are relevant to the inspection of the net contents of packaged goods and package labeling. Each article takes approximately 10-20 minutes to read.

1. **Additives to Meat and Poultry – Product Labeling**

*Changes for Product Labeling for Meats and Poultry with Added Solutions – June 2015*

<https://www.nist.gov/system/files/documents/2017/04/26/f-039.pdf>

**2. Animal Bedding – Proposed Revisions to Method of Sale and Test Procedures**

See Method of Sale – Animal Bedding and Peat Moss – Proposed Revisions

Also see NIST Handbook 130, Method of Sale in NIST HB130 – Animal Bedding and NIST HB 133 Test Procedure for Animal Bedding (Section 3.15) and Peat Moss (Section 3.9)

**3. Baler Twine – Corrections to NIST Handbook 133**

*Technical Correction to NIST Handbook 133, 2015 Edition – June 2015*

<https://www.nist.gov/system/files/documents/2017/04/26/wmconnection-vol6-issue4-june25-2015.pdf>

**4. Display of Packages - Retail Stores**

*The Display of Packages in Retail Stores and the Principal Display Panel Requirement for Packaged Goods – Winter 2017*

<https://www.nist.gov/system/files/documents/2017/12/18/wmconnections-vol8-issue4-dec2017.pdf>

**5. Education and Outreach – Retailer Compliance Through Outreach**

*Ideas for Obtaining Retailer Compliance Through Education and Outreach – September 2008 (Article F-025)*

<https://www.nist.gov/system/files/documents/2017/04/28/F-025.pdf>

**6. Fair Packaging and Labeling Act – Inclusion of NIST Handbook 133 Conversion Tables**

*NIST Handbook 133 Conversion Tables Incorporated into FTC's Fair Packaging and Labeling Act – March 2016 (Article F-043)*

<https://www.nist.gov/system/files/documents/2017/04/26/F-043.pdf>

**7. Fair Packaging and Labeling Act – Metric Labeling**

*Updated Proposal to Amend the Federal Fair Packaging and Labeling Act (FPLA) – Fall 2018 (Pg. 5)*

<https://www.nist.gov/system/files/documents/2018/10/04/wmconnections-vol9-issue2-oct2018.pdf>

and

<https://nvlpubs.nist.gov/nistpubs/OWMWP/NIST.OWMWP.06-13-2018.pdf>

- 8. Inspection Practices – Net Content Inspections, Location**  
*Net Content Inspections - What and Where to Test – May 2004 (Article F-014)*  
<https://www.nist.gov/system/files/documents/2017/04/28/F-014.pdf>
- 9. Inspection Practices – Polyethylene Bags for Produce**  
*Regulatory Requirements for Fruits and Vegetables – March 2007 (Article F-022)*  
<https://www.nist.gov/system/files/documents/2017/04/28/F-022.pdf>
- 10. Labeling – Consumer and Non-Consumer**  
*Package and Labeling Differences Consumer vs. Non-consumer – March 2010*  
<https://www.nist.gov/system/files/documents/2017/05/30/f-028.pdf>
- 11. Labeling – Consumer and Non-Consumer**  
*Consumer and Non-Consumer Labeling – October 2017*  
<https://www.nist.gov/system/files/documents/2017/10/03/wmconnections-vol8-issue3-oct22017.pdf>
- 12. Labeling – Ink Jet Cartridges**  
*Ink Jet Cartridge Labeling, Is Count Enough? – March 2005 (Article F-017)*  
<https://www.nist.gov/system/files/documents/2017/05/09/F-017.pdf>
- 13. Labeling – Metric Only – UPLR Amendment**  
*NCWM Amends UPLR to Allow Metric-Only Labeling – August 1999 (Article F-002)*  
<https://www.nist.gov/system/files/documents/2017/05/09/F-002.pdf>
- 14. Labeling – Metric Only Option**  
*Providing the Option for Metric-Only Labeling – August 2001 (Article F-004)*  
<https://www.nist.gov/system/files/documents/2017/05/09/F-004.pdf>
- 15. Labeling – Metric Only – EU Directive and Industry Transition**  
*Updating U.S. Packaging and Labeling Laws – May 2002 (Article F-007)*  
<https://www.nist.gov/system/files/documents/2017/05/09/F-007.pdf>

- 16. Labeling – Metric Only**  
*Proposed Rules Would Allow Metric Only Labeling for Some Products – March 2011 (Article F-029)*

<https://www.nist.gov/system/files/documents/2017/04/26/f-029.pdf>
- 17. Labeling – Non-Consumer Packages**  
*Labeling Non-Consumer Packages – February 2004 (Article F-011)*

<https://www.nist.gov/system/files/documents/2017/05/09/F-011.pdf>
- 18. Labeling – Nutrition Labeling and Education Act**  
*Federal Involvement in Net Content Inspection – November 2001 (Article F-005)*

<https://www.nist.gov/system/files/documents/2017/05/09/F-005.pdf>
- 19. Labeling – Nutrition Labeling and Education Act**  
*Net Content Inspections - Federal Requirements – May 2004 (Article F-013)*

<https://www.nist.gov/system/files/documents/2017/04/28/F-013.pdf>
- 20. Labeling – Plants and Shrubs**  
*Planting Season is Here! How Can Consumers Identify the Best Value? – June 2013 (Article F-032)*

<https://www.nist.gov/system/files/documents/2017/05/30/f-032.pdf>
- 21. Labeling – Principle Display Panels**  
*Principal Display Panels on Random Packages – June 2014 (Article F-034)*

<https://www.nist.gov/system/files/documents/2017/05/30/f-034.pdf>
- 22. Labeling – Small Products**  
*Reduced Space Symbolology- Big News for Small Product Identification (Article F-003)*

<https://www.nist.gov/system/files/documents/2017/05/09/F-003.pdf>
- 23. Labeling – Store-Packed Packages**  
*Labeling Requirements for Packages Labeled Using In-Store Scales – March 2016, Issue 1 (Article F-041)*

<https://www.nist.gov/system/files/documents/pml/wmd/pubs/2016/03/23/F-041.pdf>

**24. Method of Sale - Animal Bedding and Peat Moss – Proposed Revisions**

*The Office of Weights and Measures Proposes Revisions to the Method of Sale for Animal Bedding and Recommends New Test Procedures and Test Measures for Use in Verifying the Quantity Declarations on Packages of Peat Moss and Animal Bedding – February 2015*

<https://www.nist.gov/system/files/documents/2017/05/09/WMConnection-Vol6-Issue2-Feb19-2015.pdf>

Also see NIST Handbook 130, Method of Sale in NIST HB130 – Animal Bedding and NIST HB 133 Test Procedure for Animal Bedding (Section 3.15) and Peat Moss (Section 3.9)

**25. Method of Sale – Bag on Valve Technology**

*NCWM Affirms Method of Sale for “Products Sold in Pressurized Containers Using Bag on Valve Technology” – December 2014*

<https://www.nist.gov/system/files/documents/2017/05/30/f-037.pdf>

**26. Method of Sale - Compressed and Liquefied Gas in Cylinders**

*NIST Handbook 130, Method of Sale, 2.16. Compressed or Liquefied Gases in Refillable Cylinders– March 2018*

<https://www.nist.gov/system/files/documents/2018/03/01/wmconnections-vol9-issue1-mar2018.pdf>

**27. Packaging Practices – Display of Packages**

See Display of Packages – Retail Stores

**28. Packaging Practices – Non-Consumer Packages**

*Non-Consumer Packages in the Consumer Marketplace – February 2004 (Article F-012)*

<https://www.nist.gov/system/files/documents/2017/05/09/F-012.pdf>

**29. Packaging Practices – Polyethylene Bags for Produce**

See Inspection Practices – Polyethylene Bags for Produce

**30. Packaging Practices – Seafood, Fraudulent Practices**

*Seafood Alert! – Winter 2009 (Article F-026)*

<https://www.nist.gov/document/f-026doc>

**31. Packaging Practices – Seafood, Fraudulent Practices - Update**

*Seafood Fraud – Where Are We Now? – December 2011 (Article f-031)*

<https://www.nist.gov/system/files/documents/2017/05/30/f-031.pdf>

- 32. Packaging Practices – Tare Procedures, Industry**  
*Report of Meeting on Tare – November 2005 (Article F-019)*  
<https://www.nist.gov/system/files/documents/2017/05/09/F-019.pdf>
- 33. Peat Moss – Proposed Revisions to Method of Sale and Test Procedures**  
See Method of Sale – Animal Bedding and Peat Moss – Proposed Revisions  
  
Also see NIST Handbook 130, Method of Sale in NIST HB130 – Animal Bedding and NIST HB 133 Test Procedure for Animal Bedding (Section 3.15) and Peat Moss (Section 3.9)
- 34. Standards – Field Standards, Calibration Intervals**  
*NIST-suggested Field Standards & Calibration Intervals – August 2005 (Article F-018)*  
<https://www.nist.gov/system/files/documents/2017/05/09/F-018.pdf>
- 35. Standards – Field Test Standards**  
*Field Standards for Weights and Measures – April 2013*  
<https://www.nist.gov/system/files/documents/2017/05/09/WMConnections-Vol4-Issue2-April-2013.pdf>
- 36. Standards – Documentary, NIST Handbook 133**  
*Intent and Scope of NIST Handbook 133 – August 2002 (Article F-008)*  
<https://www.nist.gov/system/files/documents/2017/05/09/F-008.pdf>
- 37. Standards – Thermometers**  
*NIST Launches New Website to Educate Industry About Alternatives to Mercury Thermometers – March 2013, Issue 1*  
<https://www.nist.gov/system/files/documents/2017/05/09/WMConnections-Vol4-Issue1-Feb-25-2013.pdf>
- 38. Test Procedures – Animal Bedding and Peat Moss**  
*The Office of Weights and Measures Proposes Revisions to the Method of Sale for Animal Bedding and Recommends New Test Procedures and Test Measures for Use in Verifying the Quantity Declarations on Packages of Peat Moss and Animal Bedding – February 2015*  
<https://www.nist.gov/system/files/documents/2017/05/09/WMConnection-Vol6-Issue2-Feb19-2015.pdf>

Also see NIST Handbook 130, Method of Sale in NIST HB130 – Animal Bedding and NIST HB 133 Test Procedure for Animal Bedding (Section 3.15) and Peat Moss (Section 3.9)

**39. Test Procedures - Chamois**

*Test Procedure for Checking the Area Measurement of Chamois Revised – March 2020*

[https://www.nist.gov/system/files/documents/2020/03/13/Weights%26MeasuresConnection\\_Vol10-Issue1\\_2.pdf](https://www.nist.gov/system/files/documents/2020/03/13/Weights%26MeasuresConnection_Vol10-Issue1_2.pdf)

See NIST Handbook 133, Section 4.8. for the latest version (2019)

**40. Test Procedures – Chitterlings**

*Announcing the Availability of a Draft Procedure for Determining the Amount of Purge from Chitterlings – August 2014*

<https://www.nist.gov/system/files/documents/2017/05/30/f-036.pdf>  
[See NIST Handbook 133, Section 2.7. for the latest version \(2015\)](#)

**41. Test Procedures – MAVs – USDA Products**

*MAVs and USDA Products – August 2004 (Article F-015)*

<https://www.nist.gov/system/files/documents/2017/05/09/F-015.pdf>

**42. Test Procedures – MAVs – USDA Products, Clarifications**

*USDA Clarifies MAVs – March 2005 (Article F-016)*

<https://www.nist.gov/system/files/documents/2017/05/09/F-016.pdf>

**43. Test Procedures – Moisture Loss Allowances**

*Moisture Loss: What is it? How much is allowed? – February 2002 (Article F-006)*

<https://www.nist.gov/system/files/documents/2017/05/09/F-006.pdf>

**44. Test Procedures – Moisture Loss Allowances**

*Moisture Allowance—The Official’s Nemesis; Industry’s Nightmare! – March 2006 (Article F-021)*

<https://www.nist.gov/system/files/documents/2017/05/09/F-021.pdf>

**45. Test Procedures – Packages, Largest Declared Unit**

*Package Testing Based on the Largest of the Declared Quantities – September 2013*

<https://www.nist.gov/system/files/documents/2017/05/30/f-030.pdf>



**46. Test Procedures – Tare, Stored Tare**

*Tare Verification “Ensuring the Accuracy of Pre-Packaged Tare” – September 2011*

[https://www.nist.gov/system/files/documents/2017/05/09/wmconnections-vol2-issue6-sept2011-ver3\\_wmconnections.pdf](https://www.nist.gov/system/files/documents/2017/05/09/wmconnections-vol2-issue6-sept2011-ver3_wmconnections.pdf)

**47. Test Procedures – Tare, Wax on Cheese**

*Is the Wax Coating on Cheese Considered Tare? – June 2008 (Article F-024)*

<https://www.nist.gov/system/files/documents/2017/05/09/F-024.pdf>

**48. Test Procedures – Softwood Lumber**

*Testing Softwood Lumber – February 2017*

<https://www.nist.gov/system/files/documents/2017/02/09/wmconnections-vol8-issue1-feb9-2017.pdf>

See NIST Handbook 133, Section 4.11. for the latest version (2019)

**49. Test Procedures - Compressed Gas in Cylinders**

*Update for the Test Procedure for 3.13. Determining Net Contents of Compressed Gas in Cylinders – March 2018*

<https://www.nist.gov/system/files/documents/2018/03/01/wmconnections-vol9-issue1-mar2018.pdf>

**General:**

**50. Accuracy of Measurement**

*Measure for Measure – Does Accuracy Matter to You? – July 2016*

<https://www.nist.gov/system/files/documents/pml/wmd/pubs/2016/06/30/WMCconnections-Vol7-Issue4-July2016.pdf>

**51. International System of Units (SI) – Adoption in State Law**

*Adoption of the SI in State Law – March 2016, (Issue 1. Pg. 4)*

<https://www.nist.gov/system/files/documents/pml/wmd/pubs/2016/03/08/WMCconnection-Vol7-Issue1-7Mar2016.pdf>

**52. International System of Units (SI) – Evolution**

*World Metrology Day May 20, 2018 - Constant Evolution of the International System of Units (SI) – March 2018*

<https://www.nist.gov/system/files/documents/2018/03/01/wmconnections-vol9-issue1-mar2018.pdf>

NIST OWM is continually developing new articles, so be sure to consult our website for any articles that may have been added since the issuance of this study guide. Articles organized by topic area such as “weighing” or “packaging and labeling” or “metrology” or other technical areas can be found at the following address:

<https://www.nist.gov/pml/weights-and-measures/weights-and-measures-newsletter-archives>

Complete newsletters published from 2010 to present can be found at the following address:

<https://www.nist.gov/pml/weights-and-measures/weights-and-measures-connection-newsletter-archive>

### **III. Instructor-Led Training Opportunities**

#### **1. Webinars**

NIST OWM periodically offers webinars and on-line presentations on a variety of topics related to legal metrology, including the inspection activity covered in this guide. OWM is currently working to increase its offerings of webinars related to the inspection and testing of commercial weighing and measuring devices. Be sure to consult our calendar of events to determine if there are any upcoming offerings related to the inspection activity covered in this study guide.

<https://www.nist.gov/pml/weights-and-measures/about-owm/calendar-events>

#### **2. In-Person Training Events**

NIST OWM periodically offers classroom-based training classes at various places around the U.S. Typically hosted by a weights and measures agency, this training ranges in duration from several days to a full week. Be sure to consult our calendar of events at the link referenced above for upcoming training events.

<https://www.nist.gov/pml/weights-and-measures/about-owm/calendar-events>

## IV. Technical Guidance and Interpretations

### 1. NIST OWM Technical Staff

As always, NIST OWM staff are available to provide guidance and interpretations on technical issues related to legal metrology. All our technical staff are working remotely and remain available via email and phone. If you are holding a virtual meeting to discuss specific technical issues, for example, and would like our input on a particular point, we may be able to connect with you remotely. All International Legal Metrology work (OIML and other) is being maintained. For reference, our technical staff contact list is available on our web site at:

<https://www.nist.gov/pml/weights-and-measures/about-owm/staff-and-technical-experts-directory>

### 2. NCWM Final Reports

Changes to NIST Handbooks 44, 130, and 133 are developed through the National Conference on Weights and Measures and voted on by state and local weights and measures officials. During the development of these changes, weights and measures officials, industry, NIST, and other stakeholders present and consider background information and key technical points regarding those changes and their anticipated impact. This information is documented in the final reports of the National Conference on Weights and Measures (NCWM) Specifications and Tolerances Committee (for NIST Handbook 44) and the NCWM Laws and Regulations Committee (for NIST Handbooks 130 and 133). The reports also include Committee recommendations; input from the NIST technical advisors; and the intended application of specific requirements in Handbooks 44, 130, and 133. The information in the NCWM reports can be helpful in gaining a deeper understanding of many of the specific Handbook requirements, including their intended application and associated changes over the years.

Reports issued from 2008 to present are posted on the NIST OWM website at the following link:

<https://www.nist.gov/pml/weights-and-measures/publications/ncwm-annual-reports>

Copies of previous reports are available upon request from NIST OWM. A flash drive including all NCWM reports from 1905-2017 along with keyword search capability is also available upon request when NIST returns to normal operating status.