**The following tables contain lists of existing code sections with approaching retroactive or nonretroactive enforcement dates or recently adopted requirements that are enforceable as of January 1, 2008. These NIST Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices," requirements may require action by device manufacturers, owners/operators, or regulatory officials. This information is provided to alert interested parties to upcoming Handbook 44 requirements. Requirements in the tables may be paraphrased; therefore, the latest edition of Handbook 44 should be consulted for the complete text. Codes that were amended to provide greater clarity or make other editorial changes are not included in this information. A complete report of changes to the handbook is published annually in the Report of the National Conference on Weights and Measures. Changes to requirements are also referenced in the amendments table in each edition of Handbook 44. It is recommended that you contact the statutory authority in your weights and measures jurisdiction for specific details on the enforcement of these code requirements.**

**Retroactive requirements apply to *all* equipment in commercial service prior to, and in use at any time on or after, the enforcement date. Nonretroactive requirements are enforceable for equipment: (1) manufactured, (2) new and used brought into a jurisdiction, and (3) previously in noncommercial use, then placed into commercial use *after* the effective date. Note: Paragraphs designated with a bracketed superscript number one [1] include multiple requirements with various enforcement dates.**

**NIST Handbook 44 Codes**
**(With Approaching Retroactive and Nonretroactive Enforcement Dates)**

| Code Section | Paragraph | Requirement | Effective Date |
|---|---|---|---|
| **1.10. General Code** | **G-S.5.6.1. Indicated and Recorded Representation of Units. –** Appropriate abbreviations. **(a) and (b)** | **(a) For equipment manufactured on or after January 1, 2008, the appropriate defining symbols shall be those shown in NIST Special Publication SP 811 "Guide for the Use of International System of Units (SI)" and NIST Handbook 44 Appendix C – General Tables of Units of Measurement.**<br><br>**(b) The appropriate defining symbols on equipment manufactured prior to January 1, 2008, with limited character sets are shown in Table 1. Representation of SI Units on Equipment Manufactured Prior to January 1, 2008, with Limited Character Sets.** | **January 1, 2008** |
| **1.10. General Code** | **G-S.8.1. Multiple Weighing or Measuring Elements that Share a Common Provision for Sealing** | **A change to any metrological parameter (calibration or configuration) of any weighing or measuring element shall be individually identified.**<br><br>**Note: For devices that utilize an electronic form of sealing, in addition to the requirements in G-S.8.1., any appropriate audit trail requirements in an applicable specific device code also apply. Examples of identification of a change to the metrological parameters of a weighing or measuring element include, but are not limited to:**<br><br>**(1) a broken, missing, or replaced physical seal on an individual weighing, measuring, or indicating element or active junction box;**<br><br>**(2) a change in a calibration factor or configuration setting for each weighing or measuring element;** | **Nonretroactive as of January 1, 2010** |

**NIST Handbook 44 Codes**
**(With Approaching Retroactive and Nonretroactive Enforcement Dates)**

| Code Section | Paragraph | Requirement | Effective Date |
|---|---|---|---|
| | | **(3) a display of the date of calibration or configuration event for each weighing or measuring element; or**<br><br>**(4) counters indicating the number of calibration and/or configuration events for each weighing or measuring element.** | |
| **3.30 Liquid-Measuring Devices** | **S.1.6.5.6. Display of Quantity and Total Price, Aviation Refueling Applications.** | **Display of Quantity and Total Price, Aviation Refueling Applications.**<br><br>**(a) The quantity shall be displayed throughout the transaction.**<br><br>**(b) The total price shall also be displayed under one of the following conditions:**<br><br>**i. The total price can appear on the face of the dispenser or through a controller adjacent to the device.**<br><br>**ii. If a device is designed to continuously compute and display the total price, then the total price shall be computed and displayed throughout the transaction for the quantity delivered.**<br><br>**(c) The total price and quantity shall be displayed for at least 5 minutes or until the next transaction is initiated by using controls on the device or other customer-activated controls.**<br><br>**(d) A printed receipt shall be available and shall include, at a minimum, the total price, quantity, and unit price.** | **Nonretroactive as of January 1, 2008** |

**NIST Handbook 44 Codes Newly Adopted or Recently Modified**
**(Applicable to All Equipment Effective January 1, 2008)**

| Code Section | Paragraph | Requirement | New or Modified Requirement | Effective Date |
|---|---|---|---|---|
| **1.10. General Code** | **G-S.2. Facilitation of Fraud** | **All equipment and all mechanisms, software, and devices attached to or used in conjunction therewith shall be so designed, constructed, assembled, and installed for use such that they do not facilitate the perpetration of fraud.** | **Modified paragraph** | **Applies to all equipment on January 1, 2008** |
| **2.20. Scales** | **N.1.3.1. Bench or Counter Scales** | **Paragraph deleted thereby eliminating all reference to "bench" and "counter" scales. Subsequent paragraphs N.1.3.2 through N.1.3.8. renumbered.**<br><br>**Note: As a result of this action, scales previously referred to as "bench" or "counter" types are reclassified (for shift test purposes) into a broader group of scales and tested in accordance with the shift test procedures outlined in N.1.3.7. All Other Scales Except Crane Scales, Hanging Scales, Hopper Scales, Wheel-Load Weighers, and Portable Axle-Load Weighers.** | **Deleted paragraph (subsequent paragraphs renumbered)** | **Applies to all equipment on January 1, 2008** |
| **2.20. Scales** | **N.1.3.3.3. Prescribed Test Patterns and Test Loads for Two-Section Livestock Scales** | **A shift test shall be conducted using the following prescribed test loads and test patterns, provided the shift test load does not exceed one-half the rated section capacity or one-half the rated concentrated load capacity whichever is applicable, using either:**<br><br>**(a) A one-half nominal capacity test load centered as nearly as possible, successively at the center of each quarter of the load-receiving element, or**<br><br>**(b) A one-quarter nominal capacity test load centered as nearly as possible, successively over each main load support.** | **New paragraph** | **Applies to all equipment on January 1, 2008** |
| **2.20. Scales** | **N.1.3.7. All Other Scales Except Crane Scales, Hanging Scales, Hopper Scales, Wheel-Load Weighers, and Portable Axle-Load Weighers.** | **A shift test shall be conducted using the following prescribed test loads and test patterns. A single field standard weight used as the prescribed test load shall be applied centrally in the prescribed test pattern. When multiple field standard weights are used as the prescribed test load, the load shall be applied in a consistent pattern in the shift test positions throughout the test and applied in a manner that does not concentrate the load in a test pattern that is less than when that same load is a single field standard weight on the load-** | **Modified paragraph and new descriptive Figures (1 and 2) added** | **Applies to all equipment on January 1, 2008** |

**NIST Handbook 44 Codes Newly Adopted or Recently Modified**
**(Applicable to All Equipment Effective January 1, 2008)**

| Code Section | Paragraph | Requirement | New or Modified Requirement | Effective Date |
|---|---|---|---|---|
| | | **receiving element.**<br><br>**(a) For scales with a nominal capacity of 500 kg (1000 lb) or less, a shift test shall be conducted using a one-third nominal capacity test load (defined as test weights in amounts of at least 30 % of scale capacity, but not to exceed 35 % of scale capacity) centered as nearly as possible at the center of each quadrant of the load-receiving element using the prescribed test pattern as shown in Figure 1.**<br><br>**(b) For scales with a nominal capacity greater than 500 kg (1000 lb), a shift test may be conducted by either using a one-third nominal capacity test load (defined as test weights in amounts of at least 30 % of scale capacity, but not to exceed 35 % of scale capacity) centered as nearly as possible at the center of each quadrant of the load-receiving element using the prescribed test pattern as shown in Figure 1, or by using a one-quarter nominal capacity test load centered as nearly as possible, successively, over each corner of the load-receiving element using the prescribed test pattern as shown in Figure 2.** | | |
| **2.20. Scales** | **N.1.3.5.1. Dynamic Monorail Weighing Systems** | **Dynamic monorail weighing systems are to be tested dynamically during normal plant production using no less than 20 test loads consisting of carcasses or portions of carcasses of the type normally weighed. If the plant conveyor chain does not space or prevent the carcasses or portions of carcasses from touching one another, dynamic tests shall not be conducted until the condition has been corrected.**<br><br>**All carcasses or portions of carcasses shall be individually weighed statically on either the same scale being tested dynamically or another monorail scale with the same or smaller divisions and in close proximity. (The scale selected for weighing the carcasses shall first be tested statically with test weights.)** | **Modified paragraph** | **Applies to all equipment on January 1, 2008** |

**NIST Handbook 44 Codes Newly Adopted or Recently Modified**
**(Applicable to All Equipment Effective January 1, 2008)**

| Code Section | Paragraph | Requirement | New or Modified Requirement | Effective Date |
|---|---|---|---|---|
| | | **If the scale being tested is used for weighing freshly slaughtered animals, care must be taken to get a static weighment as quickly as possible before or following the dynamic weighment to avoid loss due to shrink. If multiple dynamic tests are conducted using the same carcasses or portions of carcasses, static weights shall be obtained before and after multiple dynamic tests. If the carcass or portion of a carcass changes weight between static tests, the amount of weight change shall be taken into account, or the carcass or portion of a carcass shall be disregarded for tolerance purposes.**<br><br>**(Note: For a dynamic monorail test, the reference scale shall comply with the principles in the Fundamental Considerations paragraph 3.2. Tolerances for Standards.)** | | |
| **2.24. Automatic Weighing Systems** | **Table S.7.b. Notes for Table S.7.a., (Note 5)** | **The temperature limits must be marked on the device if the temperature range on the NTEP CC is narrower than and within –10 ºC to 40 ºC (14 ºF to 104 ºF).** | **Modified note** | **Applies to all equipment on January 1, 2008** |
| **2.24. Automatic Weighing Systems** | **T.2.3. Subsequent Verification Examinations.** | **For subsequent verification examinations, the tolerance values apply regardless of the influence factors in effect at the time of the conduct of the examination. (Also see G-N.2., Testing with Nonassociated Equipment)** | **New paragraph** | **Applies to all equipment on January 1, 2008** |
| **3.30. Liquid-Measuring Devices** | **S.1.2.3. Value of Smallest Unit.** | **The value of the smallest unit of indicated delivery, and recorded delivery if the device is equipped to record, shall not exceed the equivalent of:**<br><br>**(a) 0.5 L (0.1 gal) on devices with a maximum rated flow rate of 750 L/min (200 gal/min) or less;**<br><br>**(b) 5 L (1 gal) on devices with a maximum rated flow of more than 750 L/min (200 gal/min);**<br><br>**(c) 5 L (1 gal) on meters with a rated maximum flow rate of 375 L/min (100 gal/min) or more used for jet fuel** | **Modified paragraph** | **Applies to all equipment on January 1, 2008** |

**NIST Handbook 44 Codes Newly Adopted or Recently Modified**
**(Applicable to All Equipment Effective January 1, 2008)**

| Code Section | Paragraph | Requirement | New or Modified Requirement | Effective Date |
|---|---|---|---|---|
| | | **aviation refueling systems.**<br><br>**This requirement does not apply to manually operated devices equipped with stops or stroke-limiting means.** | | |
| **3.30. Liquid-Measuring Devices** | **S.1.6.5.5. Display of Quantity and Total Price and S.1.6.5.6. Display of Quantity and Total Price, Aviation Refueling Applications** | **Amendment exempts dispensers used in aviation refueling applications from having to display the total price and quantity for a completed transaction on the face of the dispenser for at least 5 minutes or until the next transaction is initiated.** | **Modified paragraph** | **Applies to all equipment on January 1, 2008** |
| **3.30 Liquid-Measuring Devices** | **S.2.2.1. Multiple Measuring Elements with a Single Provision for Sealing** | **Added note specifies that the paragraph will be removed in the 2010 edition of Handbook 44 when General Code paragraph G-S.8.1. Multiple Weighing or Measuring Elements with a Single Provision for Sealing becomes effective.** | **Note added** | **Applies to all equipment on January 1, 2008** |
| **3.30. Liquid-Measuring Devices** | **S.3.1. Diversion of Measured Liquid** | **An outlet that may be opened for purging or draining the measuring system or for recirculating, if recirculation is required in order to maintain the product in a deliverable state, shall be permitted only when the system is measuring food products, agri-chemicals, biodiesel, or biodiesel blends. Effective automatic means shall be provided to prevent passage of liquid through any such outlet during normal operation of the measuring system and to inhibit meter indications (or advancement of indications) and recorded representations while the outlet is in operation.** | **Modified paragraph** | **Applies to all equipment on January 1, 2008** |
| **3.31. Vehicle-Tank Meters** | **S.2.5.1.Automatic Temperature Compensation for Refined Petroleum Products** | **A device may be equipped with an automatic means for adjusting the indication and registration of the measured volume of product to the volume at 15 °C for liters or the volume at 60 °F for gallons and decimal subdivisions or fractional equivalents thereof where not prohibited by state law.** | **New paragraph** | **Applies to all equipment on January 1, 2008** |
| **3.31. Vehicle-Tank Meters** | **S.2.5.2. Provision for Deactivating** | **On a device equipped with an automatic temperature-compensating mechanism that will indicate or record only in terms of liters compensated to 15 °C or gallons compensated to 60 °F, provision shall be made for deactivating the automatic temperature-compensating mechanism so the meter can indicate and record, if it is equipped to record, in terms of the uncompensated volume.** | **New paragraph** | **Applies to all equipment on January 1, 2008** |

**NIST Handbook 44 Codes Newly Adopted or Recently Modified**
**(Applicable to All Equipment Effective January 1, 2008)**

| Code Section | Paragraph | Requirement | New or Modified Requirement | Effective Date |
|---|---|---|---|---|
| **3.31. Vehicle-Tank Meters** | **S.2.5.3. Gross and Net Indications** | **A device equipped with automatic temperature compensation shall indicate or record, if equipped to record, both the gross (uncompensated) and net (compensated) volume for testing purposes. It is not necessary that both net and gross volume be displayed simultaneously.** | **New paragraph** | **Applies to all equipment on January 1, 2008** |
| **3.31. Vehicle-Tank Meters** | **S.2.5.4. Provision for Sealing Automatic Temperature-Compensating Systems** | **Adequate provision shall be made for an approved means of security (e.g., data change audit trail) or physically applying security seals in such a manner that an automatic temperature-compensating system cannot be disconnected and no adjustment may be made to the system.** | **New paragraph** | **Applies to all equipment on January 1, 2008** |
| **3.31. Vehicle-Tank Meters** | **S.2.5.5. Temperature Determination with Automatic Temperature Compensation** | **For test purposes, means shall be provided (e.g., thermometer well) to determine the temperature of the liquid either:**<br>**(a) in the liquid chamber of the meter, or**<br>**(b) immediately adjacent to the meter in the meter inlet or discharge line.** | **New paragraph** | **Applies to all equipment on January 1, 2008** |
| **3.31. Vehicle-Tank Meters** | **S.5.6. Temperature Compensation for Refined Petroleum Products.** | **If a device is equipped with an automatic temperature compensator, the primary indicating elements, recording elements, and recorded representations shall be clearly and conspicuously marked to show the volume delivered has been adjusted to the volume at 15 °C for liters or the volume at 60 °F for gallons and decimal subdivisions or fractional equivalents thereof.** | **New paragraph** | **Applies to all equipment on January 1, 2008** |
| **3.31. Vehicle-Tank Meters** | **N.4.1.3. Automatic Temperature-Compensating Systems for Refined Petroleum Products.** | **On devices equipped with automatic temperature-compensating systems, normal tests shall be conducted:**<br>**(a) by comparing the compensated volume indicated or recorded to the actual delivered volume corrected to 15 °C for liters or ~~(~~60 °F~~)~~ for gallons and decimal subdivisions or fractional equivalents thereof; and**<br>**(b) with the temperature-compensating system deactivated, comparing the uncompensated volume indicated or recorded to the actual delivered volume.**<br>**The first test shall be performed with the automatic temperature-compensating system operating in the "as-found"** | **New paragraph** | **Applies to all equipment on January 1, 2008** |

| NIST Handbook 44 Codes Newly Adopted or Recently Modified (Applicable to All Equipment Effective January 1, 2008) | | | | |
|---|---|---|---|---|
| **Code Section** | **Paragraph** | **Requirement** | **New or Modified Requirement** | **Effective Date** |
| | | **condition. On devices that indicate or record both the compensated and uncompensated volume for each delivery, the tests in (a) and (b) may be performed as a single test.** | | |
| **3.31. Vehicle-Tank Meters** | **N.5. Temperature Correction for Refined Petroleum Products.** | **Corrections shall be made for any changes in volume resulting from the differences in liquid temperatures between the time of passage through the meter and the time of volumetric determination in the prover. When adjustments are necessary, appropriate petroleum measurement tables should be used.** | **New paragraph** | **Applies to all equipment on January 1, 2008** |
| **3.31. Vehicle-Tank Meters** | **T.2.1. Automatic Temperature-Compensating Systems.** | **The difference between the meter error (expressed as a percentage) for results determined with and without the automatic temperature-compensating system activated shall not exceed:**<br><br>**(a) 0.4 % for mechanical automatic temperature-compensating systems; and**<br><br>**(b) 0.2 % for electronic automatic temperature-compensating systems.**<br><br>**The delivered quantities for each test shall be approximately the same size. The results of each test shall be within the applicable acceptance or maintenance tolerance.** | **New paragraph** | **Applies to all equipment on January 1, 2008** |

**NIST Handbook 44 Codes Newly Adopted or Recently Modified**
**(Applicable to All Equipment Effective January 1, 2008)**

| Code Section | Paragraph | Requirement | New or Modified Requirement | Effective Date |
|---|---|---|---|---|
| **3.31. Vehicle-Tank Meters** | **UR.2.5.1. When to be Used.** | **In a state that does not prohibit, by law or regulation, the sale of temperature-compensated product, a device equipped with an operable automatic-temperature compensator shall be connected, operable, and in use at all times. An electronic or mechanical automatic temperature-compensating system may not be removed, nor may a compensated device be replaced with an uncompensated device, without the written approval of the responsible weights and measures jurisdiction.**<br><br>**Note: This requirement does not specify the method of sale for products measured through a meter.** | **New paragraph** | **Applies to all equipment on January 1, 2008** |
| **3.31. Vehicle-Tank Meters** | **UR.2.5.2. Invoices** | **An invoice based on a reading of a device that is equipped with an automatic temperature compensator shall show that the volume delivered has been adjusted to the volume at 15 °C for liters or the volume at 60 °F for gallons and decimal subdivisions or fractional equivalents thereof.** | **New paragraph** | **Applies to all equipment on January 1, 2008** |
| **5.56.(a) Grain Moisture Meters** | **S.1.2. Selecting or Recording Grain or Seed Type and Class.** | **Amendment adds a provision for selecting and recording multi-class groups of grain or seed to be measured. The means to select the type and class or the multi-class group of grain or seed must be readily visible, and once selected, clearly and definitely identified.** | **Modified paragraph** | **Applies to all equipment on January 1, 2008** |
| **5.56.(a) Grain Moisture Meters** | **Table S.1.2. Grain Types and Multi-Class Groups Considered for Type Evaluation and Calibration and Their Minimum Acceptable Abbreviations.** | **Amendment adds multi-class groups of grain or seed and specifies the minimum acceptable abbreviations for grain types and multi-class groups of grain or seed.** | **Modified Table** | **Applies to all equipment on January 1, 2008** |
| **5.57. Near-Infrared Grain Analyzers** | **S.1.2. Selecting and Recording Grain Class and Constituent** | **Amendment adds a provision for selecting and recording multi-class groups of grain to be measured. The means to select the grain type or class or the multi-class group of grain and the constituent(s) must be readily visible, and the type or class or multi-class group of grain and the constituent(s) selected must be clearly and definitely identified using letters. A symbol may be used to identify the type or class or multi-class group of grain and constituent(s) selected provided that it is clearly defined adjacent to the display.** | **Modified paragraph** | **Applies to all equipment on January 1, 2008** |

**NIST Handbook 44 Codes Newly Adopted or Recently Modified**
**(Applicable to All Equipment Effective January 1, 2008)**

| Code Section | Paragraph | Requirement | New or Modified Requirement | Effective Date |
|---|---|---|---|---|
| **5.57. Near-Infrared Grain Analyzers** | **Table S.1.2. Grain Types and Multi-Class Groups Considered for Type Evaluation and Calibration and Their Minimum Acceptable Abbreviations** | **Amendment adds multi-class groups of grain and specifies the minimum acceptable abbreviations for grain types and multi-class groups of grain.** | **Modified Table** | **Applies to all equipment on January 1, 2008** |
| **Appendix D - Definitions** | **bench scale** | **See "counter scale"[2.20]** | **Delete definition** | **Applies to equipment in Section 2.20.** |
| **Appendix D - Definitions** | **counter scale** | **One that, by reason of its size, arrangement of parts, and moderate nominal capacity, is adapted for use on a counter or bench. Sometimes called "bench scale."[2.20]** | **Delete definition** | **Applies to equipment in Section 2.20.** |
| **Appendix D - Definitions** | **multi-class** | **A description of a grouping of grain classes, from the same grain type, in one calibration. A multi-class grain calibration may include (1) all the classes of a grain type (all-class calibration), or (2) some of the classes of a grain type within the calibration.[5.56(a), 5.57]** | **New Definition** | **Applies to equipment in Section 5.56.(a)** |
| **Appendix D - Definitions** | **all-class** | **A description of a multi-class calibration that includes all the classes of a grain type.[5.56(a), 5.57]** | **New Definition** | **Applies to equipment in Section 5.56.(a)** |
| **Appendix D - Definitions** | **grain class** | **Different grains within the same grain type. For example, there are six classes for the grain type "wheat:" Durum Wheat, Hard Red Spring Wheat, Hard Red Winter Wheat, Soft Red Winter Wheat, Hard White Wheat, and Soft White Wheat. [5.56(a), 5.57]** | **New Definition** | **Applies to equipment in Section 5.56.(a)** |
| **Appendix D - Definitions** | **grain type** | **See "kind of grain." [5.56(a), 5.57]** | **New Definition** | **Applies to equipment in Section 5.56.(a)** |