## Handbook 133, Fourth Edition Proposed Amendments and Editorial Changes

The following table lists the amendments and editorial changes that are under consideration by the membership of the NCWM. As appropriate, the text on the cited pages indicates the changes to the section or paragraph as indicated in bold **strikeout** for deletions and bold **underscore** for insertions.

Line item No.	Section No. & Page No.	Title	Action	Comments
			Chapter 1	
Gener	al Information	1		
1	1.1. G9	Scope	Replaced standards with laws and regulations	
2	1.1.a. G9	When and where to use checking procedures?	a. Where and when When and where to use package checking procedures?	
3	1.1.a.(3) G11	Retail	Amend sentence 2.  It is acceptable <u>and</u> practical <u>means</u> for <u>State</u> , <u>county and city weights and measures</u> jurisdictions to monitor packaging procedures and to detect present or potential problems.	
Packa	ge Requireme	nts		
4	1.2.(1) G11	Inspection Lot	Replaced this collection with the lot for clarification.	
5	1.2.(3) G11	Individual Package Requirement	Change the end of the last sentence. 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.	
6	1.2.(4) G11	Maximum Allowable Variation	The limit of the "reasonable minus variation" for an individual underweight package is called a "Maximum Allowable Variation" (MAV). An MAV is a deviation from the labeled weight, measure, or count of an individual package beyond which the deficiency is considered an unreasonable minus error.	

Line item No.	Section No. & Page No.	Title	Action	Comments
7	1.2.(5)a. G11	Deviations Caused by Moisture Loss or Gain  – Why do we allow for moisture loss or gain?	a. Why <u>and when</u> do we allow for moisture loss or gain?  (Revise the first paragraph, second sentence.)  The amount of <u>lost</u> moisture <u>loss</u> depends upon the nature of the product, the packaging material, the length of time it is in distribution, environmental conditions, and other factors.  (Revised the first paragraph, last sentence.)  For loss or gain of moisture, <u>apply</u> the moisture allowances <u>may b e a pplied b efore o r a fter t he package errors are determined</u> .	
8	1.2.(5)a. G12	Deviations Caused by Moisture Loss or Gain  – Why do we allow for moisture loss or gain?	To apply a moisture allowance before determining package errors, adjust the Nominal Gross Weight (see S ection 2.3. "Basic T est P rocedure") — Determine N ominal Gross W eight and P ackage Errors for Tare Sample, so the package errors are increased by a n a mount e qual t o t he moisture allowance. This approach is u sed to account for moisture loss in both the a verage and individual package errors.  It is a lso permissible to apply the moisture allowances after individual package errors.  It is a lso permissible to apply the moisture allowances after individual package errors and average errors are determined. For example, a sample of a product that could be subject to moisture loss might fail because the average error is minus or the error in several of the sample packages are found to be unreasonable errors (i.e., the package error is greater than the Maximum Allowable Variation permitted for the package's labeled quantity). to both the maximum allowable variations permitted for individual packages and the average net quantity of contents before determining the conformance of a lot You can apply an allowance after determining the errors by adding an amount equal to the moisture allowance to adjust the average error—so the adjusted a verage error rand individual package errors.—provide for loss of moisture from the sample packages.	Added a paragraph explaining that moisture allowances can be made before or after determining package errors.

Line item No.	Section No. & Page No.	Title	Action	Comments		
9	1.7.(2) G15	Certification Requirements for Standards and Test Equipment	This must be done according to the calibration procedures a nd o ther i nstructions f ound o n NIST's Laboratory Metrology and Calibration Procedures website at http://ts.nist.gov/WeightsAndMeasures/CalibrationProcedures.cfm in N IST H andbook 145, "H andbook f or t he Quality A ssurance of M etrological Measurements," or using other recognized procedures (e.g., those adopted for use by a state weights and measures laboratory).	EDITORIAL Many of those on the website supersede those in NIST Handbook 145 which is cited in current text. The information presented at this URL is regularly updated by the Weights and Measures Division Metrology Group. State laboratories use this as a primary source for calibration information.		
			Chapter 2			
Basic	Inspection Pro	ocedure and Record				
10	2.2.f.(3) G19/G20	Which performance tests should be conducted to ensure the accuracy of a scale? – Shift Test	Bench Scales or Balances use a test load equal to one-half third of the "maximum test load" used for the "increasing-load test." For bench scales (see Diagram 1. "Bench S cales or B alances"), place apply the test load as n early as p ossible at the center of ea ch q uadrant of the load receiving element as shown in Diagram 1. "Bench Scale or Balance."—in the center of four separate quadrants, equidistant be tween the center and edge of the load receiving element and  For Equal Arm Balances use a test load equal to one-half capacity centered successively at four points positioned equidistance between the center and the front, left, back, and right edges of each pan as shown determine the accuracy in each quadrant for (see Diagram 2. "Equal-Arm Balance)." For example, where the load-receiving element is a rectangular or circular shape, place the test load in the center of the area represented by the shaded boxes in the following diagrams.	EDITORIAL Amended this section to reflect the changes made in 2007 to the shift test procedures in NIST HB 44, Section 2.20. Scales under N.1.3.7. All Other Scales The change in HB 44 reduced the test-load to $\frac{1}{3}$ maximum nominal capacity and amended the requirement on placement of the test load on the load receiving element. The test pattern in Diagram 1 has been changed to reflect the new requirement.		
Diagram 1. Bench Scales or Balances Diagram 2. Equal-Arm Balance						

Line item No.	Section No. & Page No.	Title	Action	Comments			
Measu	rement Stand	ards and Test Equi	ipment				
11	2.2.(3)g. G20	Which Standards Apply to Other test Equipment.	These publications may be obtained from the Weights and Measures Division ( <a href="http://www.nist.gov/owm">http://www.nist.gov/owm</a> ) or the U.S. Government Printing Office.	EDITORIAL			
Basic	Inspection Pro	ocedure and Record	lkeeping				
12	2.3 G20	Basic Test Procedure	If encased-in-ice or i ce glazed or frozen-food is tested, refer to Section 2.6. "Drained W eight f or Glazed or Frozen Foods. Determining the N et weight of E neased -in-Ice and I ce Glazed Products."	EDITORIAL to match change in Sec. 2.6 title			
13	2.3.3.b. G23	Where are Maximum Allowable Variations found?	<ul> <li>Added a missing bullet and reference to "Table 2-9."</li> <li>packages bearing a USDA seal of inspection – Meat and Poultry "See Table 2-9."</li> </ul>	EDITORIAL			
14	2.3.3.d. G23	How many MAVs are permitted in a sample?	d. How many MAVs unreasonable minus errors (UMEs) are permitted in a sample?  To find out how many minus package errors are permitted to exceed the MAV, (errors known as unreasonable minus errors or UME's), (refer to Appendix A) see Column 4 in either Table 2-1. Sampling Plans for Category A or Table 2-2. Sampling Plans for Category B (refer to Appendix A). Record this number in Box 8.				
Tare I	Tare Procedures						
15	2.3.5.a.(1) G24	What types of tare may be used to determine the net weight of packaged goods? – Used Dry Tare	Note: When testing frozen foods with the Used Dry Tare approach, the frost found inside frozen food packages is included as part of the net contents, except in instances in which glazed or frozen foods are t ested a ccording t o S ection 2.6. Determining the net weight of frozen foods encased-in-ice and ice glazed products.	Half EDITORIAL			

Line item No.	Section No. & Page No.	Title	Action	Comments			
16	2.3.5.(3) G25	What types of tare may be used to determine the net weight of packaged goods?  – Wet Tare	Wet tare procedures must not be u sed to verify the labeled net weight of packages of meat and poultry packed a tano fficial U nited States Department of Agriculture facility and bearing a USDA seal of inspection. The Food Sa fety and Inspection Service (FSIS) a dopted specific sections of the 2005 4 <sup>th</sup> Edition of NIST HB 133 by reference but not the "wet are" method for determining net weight compliance. FSIS considers the free-flowing liquids in packages of meat and poultry products, including single-ingredient, raw poultry products, to be integral components of these products (see Federal Register, September 9, 2008 Volume 73, Number 175 Final Rule – pages 52189-52193).  Paragraph 2, sentence 2 – change the following:  If Wet Tare is used to verify the net weight of packages of fresh poultry, hot dogs, and franks that a resubject to the USDA regulations, the inspector must allow for moisture loss.				
17	2.3.5.(3)d Step 2. G26	How are the tare sample and the tare weight of the packaging material determined?	For sample sizes of 12 or more, subtract the individual tare weights from the <u>respective package</u> gross weights (Block a, minus Block b, on the report form) to obtain the net weight for each package and record <u>these</u> each values in Block c, "Net Wt.," on the report form.				
18	2.3.5.(3)e G26	How are the tare sample and the tare weight of the packaging material determined?	Does the inspection of aerosol containers require special procedures?  How is the tare of vacuum-packed coffee determined?	EDITORIAL (moved location within Chapter)			
Deteri	Determine Nominal Gross Weight and Package Errors for Tare Sample						
19	2.3.6.a. G27	What is a nominal gross weight?	a. What is How do I c ompute a nominal gross weight?  A nominal gross weight is used to simplify the calculation of package errors. To compute the nominal gross weight, add the average tare weight (recorded in Box 13) to the labeled weight (recorded in Box 1). To obtain the package error, subtract a package's gross weight from the nominal gross weight.				

Line item No.	Section No. & Page No.	Title	Action	Comments
20	2.3.6.b. G27/G28	What is nominal gross weight?	How do I compute the package error?  To obtain the package error, subtract the nominal gross w eight from e ach p ackage's gross w eight. The package error is represented by the formula:  Package error = gross weight - nominal gross weight	
21	2.3.6.e. G28	How is the total package error computed?	Be sure to subtract the minus package errors from the plus package errors and to record the total net error in Box 15, indicating the positive or negative value of the error.	
Moist	ure Allowance	s		
22	2.3.8 G30	Moisture Allowances	Moisture loss must be considered even when no formal allowance for the specific product is found in HB 133.	
23	2.3.8.b. G30	What are the moisture allowances for flour, and dry pet food?	What are the moisture allowances for flour, and dry pet food, pasta and o ther pr oducts? (See Table 2-3. Moisture Allowances.)	
24	2.3.8. G30	Table 2-3 Moisture Allowances	Table 2-3. M oisture A llowances f or P roduct i n  Distribution	Products stored or offered for sale on the premises where packed lose moisture (net weight) and products where ingredients have been in interstate commerce are subject to Federal Law, which permit reasonable moisture loss. Using the term "distribution" may be misinterpreted by inspectors that products offered for sale or stored on premises where packed are not entitled to moisture allowances. NIST WMD recommends that the title of Table 2-3 read "Moisture Allowances"

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Line item No.	Section No. & Page No.	Ti	tle		Action	Comments
25	2.3.8.b G31	Table 2-3 Allowand	Moisture	Corrected a misprin packages of fresh po	at in the moisture allowances for bultry to read 3 %	EDITORIAL
		<u>Table</u>	2-3. Moistu	re Allowances for Prod	luct in Distribution	
	ou are verifying the et weight of packa		The Mo	isture Allowance is:	<u>Notes</u>	
	<u>Flour</u>			3 %		
	Dry pet food	[		3 %	Dry pet food means all extruded dog and cat foods and b aked t reats packaged in K raft paper bags and/or cardboard boxes with a moisture content of 13% or less at time of pack.	
	<u>Pasta</u>		3 %		Note: P asta p roducts means a ll macaroni, n oodle, and l ike product packaged i n K raft paper b ags, paperboard cartons, and/or flexible plastic bags with a m oisture c ontent o f 13 % or l ess at t he t ime of pack.	
	<b>Borax</b>		Se	ee Section 2.4.		
				Wet Tare Only	<u>.</u>	
ve	If you are using Wet Tare in verifying the net weight of packages of one of the products listed below:		The Moisture Allowance is:		Notice: We t Ta re must not be packages of meat a nd poultry s regulations. The Food Safety and I (FSIS) a dopted s pecific s ections Edition of N IST H B 133 by refer "wet t are" method f or determi compliance. (see Federal Register, S [Volume 73, Number 175] [Final R 52193]).	ubject t o U SDA inspection Service of t he 2 005 4 th ence b ut not t he ning n et w eight September 9, 2008
	<u>Fresh poultry</u>		Fresh poultry 3 %		Fresh poultry is defined as poultry at a temperature of $-3$ °C (2 6 °F) t hat y ields or g ives when pushed with the thumb.	
	Franks or hot d	ogs		<u>2.5 %</u>		
<u>B</u>	Bacon, fresh sausage, and luncheon meats			<u>0 %</u>	For packages of bacon, fresh sausa meats, there is no moisture allowa free-flowing liquid or absorbent may with the product and the packa clinging material. Luncheon meat sausage product, loaves, jellied products, and any sliced sandwich does not include whole hams, turkeys, or chickens requiring furth be made into ready-to-eat sliced there is no free-flowing liquid inside there are no absorbent materials in product, Wet Tare and U sed equivalent.	nce if there is no aterials in contact ge is c leaned of s are a ny cooked o roducts, cu red estyle meat. This o riskets, ro asts, her preparation to product. When e the package and n contact with the

Line item No.	Section No. & Page No.	Title	Action	Comments
26	2.3.8.b G31	Moisture Allowance	The moisture allowance for flour and dry pet food is 3 % of the labeled net weight.  Note: Dry pet food means all extruded dog and eat foods and baked treat products packaged in Kraft paper bags and/or cardboard boxes with a moisture content of 13 % or less at the time of pack.	
27	2.3.8.d. G32	What moisture allowance is used with wet tare when testing packages bearing a USDA seal of inspection?	d. What moisture allowance is used with wet tare? when t esting p ackages b earing a U SDA s eal of inspection?  Wet t are p rocedures must not be u sed to verify the labeled net weight of p ackages of meat and poultry pa cked a tano fficial U nited States Department of A griculture facility and be aring a USDA s eal of in spection. The Food Safety and Inspection Service (FSIS) adopted specific sections of the 2005 4th Edition of NIST HB 133 by reference but not the "wet tare" method for determining net weight compliance. FSIS considers the free-flowing liquids in packages of meat and poultry products, including single-ingredient, raw poultry products, to be integral components of these products (see Federal Register, September 9, 2008 Volume 73, Number 175 [Final Rule – pages 52189-52193]).  See Table 2-3 Moisture Allowances – Wet Tare Only.  Use the following guideline when testing meat and poultry from any USDA inspected plant using Wet Tare and a Category A sampling plan.  For packages of fresh poultry that bear a USDA's cal of inspection, the moisture allowance is 3.5 of the labeled net weight. For net weight determinations, only, fresh poultry is defined as poultry above 3°C (26°F). This is a product that yields or gives when pushed with the thumb.  For packages of franks or hotdogs that bear a USDA's cal of inspection, the moisture allowance is 2.5% of the labeled net weight.  For packages of bacon, fresh's ausage, and luncheon meats that be ara USDA's cal of inspection, there is no moisture allowance if there	

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			is no free-flowing liquid or absorbent materials in contact with the product and the package is eleaned of clinging material. Luncheon meats are any cooked's ausage product, loaves, jellied products, cured products, and any sliced sandwich style meat. This does not include whole hams, briskets, roasts, turkeys, or chickens requiring further preparation to be made into ready to cat's liced product. When there is no free flowing liquid inside the package and there are no a bsorbent materials in contact with the product, Wet Tare and Dried Used Tare are equivalent.  When there is free-flowing liquid and liquid or absorbent absorbed by packing materials in contact with the products, all free liquid and the absorbed liquid is part of the wet tare	
28	2.3.8.e. G32	How is moisture loss handled for products not listed in NIST Handbook 133	How is moisture loss handled for products not listed in NIST Handbook 133?  Officials can test products for which no moisture loss guidance has been provided. If studies are a necessity they should be a collaborative effort between officials and industry. Because of the potential impact on interstate commerce, studies should be completed on a nationwide basis and not by individual jurisdictions unless circumstances justify only local consideration.  The amount of moisture loss from a package is a function of many factors, not the least of which is the product itself (e.g., moisture content, texture and density), packaging, storage conditions (e.g., temperature, humidity, and air flow), time, handling and others. If a packaged product is subject to moisture loss, officials must allow for "reasonable" variations caused by moisture either evaporating or draining from the product. Officials cannot set arbitrary moisture allowances based solely on their experience or intuition. Moisture allowances must be based on scientific data and must be "reasonable." Reasonable does not mean that all of the weight loss caused by moisture e vaporation or draining from the product must be allowed. As a result of product and moisture variability, the approach used by an official must be developed on a case-by-case basis depending on many factors to include, but not be limited to, the manufacturing process, packaging materials, distribution, environmental influence and the anticipated shelf life of the product.	NOT ACCEPTED – to be returned to the Moisture Loss Work Group (MLWG)

NIST Handbook 130 provides a starting point for developing a workable procedure in the Interpretation and G uideline Section 2.56. regarding "Resolution for Requests for Recognition of Moisture Loss in Other Packaged Products." Mosts tudies in volving n ationally distributed products will require that products be tested during different seasons of the year and in different ge ographic locations to develop a nationally recognized moisture allowance. Some studies may require the development of laboratory tests used for inter-laboratory comparisons to establish moisture content in products a time of pack or a tith etime of inspection.  Moisture loss or gain is a critical consideration for any net content enforcement effort and one that, in most cases, cannot be a ddressed solely by a field of ficial. If moisture loss sues a ret to be deliberated, it is the regulatory of fficial's responsibility to resolve the packer's concern utilizing a valiable resources and due process procedures. To fulfill this obligation the official may be required to utilize specialized est equipment and specific laboratory procedures. Additionally, the collection of a dequate test data may require product examination over a b road geographical are can and consideration of a wide range of environmental factors. If an ational effort is required, a coordinated effort involving industry, I rade as sociations, we eights and measures of fficials, and I dederal a genecies may be required. N IST will provide technicals upport upon request. If studies a rea necessity they should be a collaborative effort between officials and industry, and can be very time consuming depending on 1 the product. Because of the potential impact on interstate commerce, studies must be completed on a nationwide basis and not by individual irrisdictions unless circumstances is stational and to the potential impact on interstate commerce, studies must be completed on a nationwide basis and not by individual irrisdictions unless circumstances.	Line item No.	Section No. & Page No.	Title	Action	Comments
justify only local consideration.				developing a w orkable pr ocedure i n t he Interpretation a nd G uideline Se ction 2.5.6. regarding "Resolution f or R equests f or Recognition of Moisture Loss in Other Packaged Products." M ost s tudies in volving n ationally distributed products will require that products be tested during different seasons of the year and in different ge ographic l ocations t o d evelop a nationally recognized moisture allowance. S ome studies may req uire t he d evelopment o f laboratory t ests u sed for inter-laboratory comparisons t o e stablish moisture c ontent in products a t ti me o f p ack o r a t th e ti me o f inspection.  Moisture loss or gain is a critical consideration for any net content enforcement effort and one that, in most c ases, c annot be a ddressed s olely by a field o fficial. I f moisture loss is sues a re t o b e deliberated, it is the regulatory official's responsibility t o res olve the p acker's co ncern utilizing a vailable r esources a nd due pr ocess procedures. To fulfill this obligation the official may be required t o u tilizes pecialized t est equipment a nd specific laboratory p rocedures. Additionally, the collection of a dequate test data may require product examination over a b road geographical ar ea and c onsideration of a wide range of e nvironmental f actors. I f a n ational effort is required, a coordinated effort involving industry, t rade as sociations, w eights an d measures officials, and f ederal a gencies may be required. N IST will provide t echnical s upport upon r equest. I f s tudies a rea n ecessity t hey should be a c ollaborative effort b etween officials and industry and c an be very t ime c onsuming depending o n t he product. Because o f the potential i mpact on interstate commerce, s tudies must be completed on a nationwide basis and not	

Line item No.	Section No. & Page No.	Title	Action	Comments					
Calcu	Calculations								
29	2.3.9.a. G33	How is moisture allowance computed and applied to the average error?	a. How is moisture allowance computed and applied to the average error?						
30	2.3.9.b. G33/G34	How is a Moisture Allowance made prior to determining package errors?	b. How is a Moisture A llowance made p rior to determining package errors?  If the Moisture A llowance is kno wn i n a dvance (e.g., flour and dry pet food) it can be applied by adjusting the Nominal Gross Weight (NGW) used to d etermine the sample package erro rs. The Moisture A llowance (MA) in Box 13a is subtracted from the NGW. The NGW which is the sum of the Labeled Net Quantity of Contents (LNQC e.g., 907 g) and the Average Tare Weight from Box 13 (for this example use an ATW of 14 g (0.03 lb)) to obtain a n A djusted Nominal Gross Weight (ANGW) which is entered in Box 14.  The calculation is:  LNQC 907 g (2 lb) + ATW 14 g (0.03 lb) = 921 g (2.03 lb) - MA 27 g (0.06 lb) = ANGW of 918 g (1.97 lb)  which is entered in Box 14.  Package errors are determined by subtracting the ANGW from the Gross Weights of the Sample Packages (GWSP).  The calculation is:  GWSP - ANGW = Package Error  Note: When the NGW is adjusted by subtracting the Moisture A llowance v alue(s) the Maximum Allowable V ariation(s) is n ot c hanged. This is because the errors that will be found inthe sample packages have been a djusted by subtracting the Moisture A llowance (e.g., 3%) from the NGW. That increases the individual package errors by the amount of the moisture allowance (e.g., 3%). If the value(s) of the MAV(s) were also a djusted it would result in doubling the allowance. MAV is always based on the labeled net quantity.						

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31	2.3.9.b. G33	c. How is a  Moisture Allowance made after determining package errors?	c. How i sa Moisture A llowance m ade a fter determining package errors?  You can make adjustments when the value of the Moisture A llowance is determined following the test (e.g., after the sample fails or i fapacker provides are asonable moisture allowance based on data obtained using a scientific method) using the following approach:  If the sample failed the A verage and/or the Individual Package Requirements both of the following steps are applied.  If the sample failed the Average Requirement but has no unreasonable package errors, only step 1 is used. If the sample passes the A verage Requirement but fails be cause the sample included one or more Unreasonable Minus Errors (UMEs), only step 2 is used.  Step:  1. Use the following approach to apply a Moisture Allowance to the sample after the test is completed. The Moisture Allowance (MA) is computed (e.g., 3 % x 907 g (2 lb) = 27 g (0.06 lb) and added to the Sample Error Limit (e.g., if the SEL is 0.023 add 0.06 to obtain an Adjusted SEL of 0.083). The ASEL (Adjusted Sample Error Limit) is then compared to the Average Error of the Sample and:  • If the average error (disregarding sign) in Box 18 is smaller than the ASEL, the sample passes.  HOWEVER,  • If the average error (disregarding sign) in Box 18 is larger than the ASEL, the sample fails.  2. If a Moisture Allowance is to be applied to the Maximum Allowable Variation(s), the following method is recommended:  The Moisture A llowance (MA) is computed (e.g., 3 % x 907 g (2 lb) = 27 g (0.06 lb) and added to the value of the	

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			Maximum A llowable V ariation(s) f or the labeled net quantity of the package (e.g., MAV f or 90 7 g (2 lb) i s 31. 7 g (0.07 lb) + 27 g (0.06 lb) = Adjusted Maximum Allowable V ariation(s) (AMAV) of 58 .7 g). C ompare ea ch minus p ackage erro rt ot he A MAV. Mark p ackage erro rs t hat ex ceed t he AMAV and record t he number of UMEs found in the sample. If this number exceeds t he n umber of unreasonable errors a llowed, t he sample fails.	
			How i st he Maximum Allowable V ariation corrected for the moisture allowance?	
			Adjust the MAV by adding the moisture allowance to the MAV.	
			Example: 907 g (2 lb) p ackage of flour: moisture a llowance a dded t o the MAV = 31.7 g (0.07 lb) (MAV for 907 g [ 2 lb] p ackage) + 27 g (0.06 lb) moisture al lowance = a co rrected MAV of 58.7 g (0.13 lb)	
			• Correct M AV in dimensionless un its by converting the moisture allowance to dimensionless units = 0.06 lb ÷ 0.001 lb = 60. Go to Box 4 and add the moisture allowance in dimensionless units to the MAV in dimensionless units.	
			Example: M AV = 70 (MAV for 2 lb where the unit of measure = 0.001 lb) + 60 ( moisture al lowance i n dimensionless units) = 130. M inus package errors must exceed the MAV = gray area before they are declared "unreasonable errors."	
			<ul> <li>If t he n umber o f u nreasonable erro rs exceeds the allowed number (recorded in Box 8), the inspection lot fails.</li> </ul>	
			How i st he a verage err or f or the moisture allowance corrected?	
			If the minus average error (Box 18) is larger (disregarding the sign) than the SEL (Box 23) and moisture I oss a pplies, co-mpare t he d-ifference	

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			between B ox 18 and B ox 23 with t he m oisture allowance recorded in Box 13a. (Make sure that all t he v alues a re in u nits o f w eight o r in dimensionless uni ts be fore m aking this comparison.) I f B ox 13a i s l arger t han t he difference between Box 18 and 23, then the lot is considered to be in the gray area.	
			Example: B ox 13a f or 2 lb f lour is 6 0 (dimensionless units); Box 18 is 2 (dimensionless units); Box 23 is 0.550 (dimensionless units). The difference b etween Box 18 and Box 23 is 1.450 (dimensionless units). Since Box 13a is 60 (dimensionless units), Box 13a is larger than the difference b etween Box 18 and Box 23, the lot is considered to be in the gray a rea and further investigation is necessary before ruling out moisture loss as the reason for shortweight.	
32	2.3.9.d. G35	What should you do when a sample is in the moisture allowance (gray) area?	d. What should you do when a sample is in the moisture allowance (gray) area?  When the average error of a lot of fresh poultry, franks, or hot dogs from a USDA inspected plant is minus, but does not exceed the established "moisture allowance" or "gray area," contact the appropriate USDA official and/or packer or plant management personnel to determine what information is available on the lot in question. Questions to the USDA official and/or plant management r epresentative may include:  Change the note to read:  Note: If USDA or the plant management has data on the lot, such data may help to substantiate that the "lot" had met the net content requirements at the point of manufacture.	
33	2.3.9.d. G35	What should you do when a sample is in the moisture allowance (gray) area?	Reasonable deviations from net quantity of contents caused by the loss or gain of moisture from the package are permitted when caused by ordinary and customary exposure to conditions that occur under good distribution practices.	

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Borax	1		La	
34	2.4.b. G37	How is the volume determined?	Step 3. Compare the net volume of the commodity in the package with the volume declared on the package. The volume declaration must not is not located appear on the principal display panel. Instead, it will appear on the back or side of the package and may appear as: The following example is how the declaration of volume should appear.	
The D	etermination o	of Drained Weight		
35	2.5. G38	Equipment	For c anned t omatoes a U.S. St andard t est sieve with 11.2 mm ( <sup>7</sup> / <sub>16</sub> in) openings must be used.	
Drain	ed Weight for	Glazed or Frozen I	Foods	
	la iii dagaa iii ii		Drained W eight for G lazed o r F rozen F oods	
36	2.6. G39	Drained Weight for Glazed or Frozen Foods	Determining t he N et W eight o f E neased-in-Ice and Ice Glazed Products	
37	2.6.a. G39	How is the drained weight of frozen shrimp and crabmeat determined?	<ul> <li>a. How is should the drained net weight of frozen shrimp (e.g., 2.27 kg (5 lb) bl ock of s hrimp) and cra bmeat seafood, meat, p oultry and similar pr oducts en cased-in-ice and frozen into b locks or solid masses (i.e., n ot individually glazed) be determined?</li> <li>When determining the net weight of frozen-shrimp and cra bmeat seafood, meat, p oultry and s imilar products, use the test equipment and procedure provided below.</li> <li>1. Immerse the p roduct directly in water in a mesh basket or open container to thaw (e.g., it is not placed in a plastic bag). Direct immersion does not result in the product absorbing moisture because the freezing process causes the tissue to lose its ability to hold water.</li> <li>2. Maintain the water temperature between 23 °C to 29 °C (75 °F to 85 °F). The is is accomplished by maintaining a constant flow of warm water into the container holding the product (e.g., place a bucket in a sink to catch the overflow, and feed warm water into the bottom of the bucket through a hose).</li> <li>3. After thawing, drain the product on a sieve for 2 minutes and then weigh it.</li> </ul>	

Line item No.	Section No. & Page No.	Title	Action	Comments
38	2.6.a G39	How is the drained weight of frozen shrimp and crabmeat determined?  – Test Equipment	<ul> <li>Balance and weights (used to verify accuracy)</li> <li>Partial immersion thermometer or equivalent with 1 °C (2 °F) graduations and a - 35 °C to +50 °C (-30 °F to +120 °F) accurate to ±1 °C (±2 °F)</li> <li>Water source and hose with approximate flow rate of 4 L to 15 L (1 gal to 4 gal) per minute for thawing blocks and other flow rate</li> <li>Sink or other receptacle [i.e., bucket with a capacity of approximately 15 L (4 gal) bucket] for thawing blocks and other products</li> <li>A wire mesh basket (used f or testing l arge frozen blocks of shrimp) or other container that is large enough to hold the contents of 1 package (e.g., 2.27 kg or [5 lb] box of shrimp) and has openings small enough to retain all pieces of the product (e.g., an expanded metal test tube basket lined with standard 16-mesh screen)</li> </ul>	
39	2.6.a. G40	How is the drained weight of frozen shrimp and crabmeat determined?  - Test Procedure Step 1. and Step 2.	<ol> <li>Place the unwrapped frozen shrimp or erabmeat seafood, meat or poultry in the wire mesh basket or open container to thaw (e.g. it is not placed in a plastic bag) and immerse in a 15 L (4 gal) or larger container of fresh water at a temperature between 23 °C to 29 °C (75 °F to 85 °F). Submerge the basket so that the top of the basket extends above the water level.</li> <li>Maintain a continuous flow of water into the bottom of the container to keep the temperature within the specified range. This is accomplished by maintaining a constant flow of warm water into the container holding the product (e.g., place a bucket in a sink to catch the overflow, and feed warm water into the bottom of the bucket through a hose). Direct immersion do es not result in the product absorbing moisture because the freezing process causes the tissue to lose its ability to hold water.</li> </ol>	
40	2.6.b. G40	How is the net weight of glazed raw seafood and fish determined?	b. How is the net weight of <u>ice</u> glazed raw seafood, <u>meat, p oultry or s imilar p roducts</u> and f ish determined	
41	2.6.b. G40	b. How is the net weight of ice glazed-raw seafood, meat, poultry or similar products and fish determined?	For <u>iced</u> glazed seafood, meat, <u>poultry or similar</u> <u>products and fish</u> , determine the net weight after removing the glaze using the following procedure.	

Line item No.	Section No. & Page No.	Title	Action	Comments
42	2.6.b. G40	b. How is the net weight of ice glazed-raw seafood, meat, poultry or similar products and fish determined  - Test Equipment	Use the equipment listed in Section 2.6. "Drained Weight for Glazed or Frozen Foods."  Balance and weights (used to verify accuracy)  Continuous cold water source  Number 8 sieve and receiving pan, 20 cm (8 in) for packages 453 g (1 lb) or less. A 30 cm (12 in) for packages more than 453 g (1 lb)  Means to determine a 17° to 20° angle  Stopwatch	

Line item No.	Section No. & Page No.	Title	Action	Comments
43	2.6.b. G41	How is the net weight of glazed raw seafood and fish determined?  – Test procedures	Step:  1. Fill out a glazed seafood package report form (See A ppendix E) and select the random sample. A tare sample is not needed  2. Weigh sieve and receiving pan. Record this weight on a glazed seafood package worksheet (See A ppendix E) as "sieve receiving pan weight."  3. Remove each package from low temperature storage; open it immediately and place the contents in the sieve or other draining device (i.e. co lander) under a gentle spray of cold water. Carefully agitate the product, handling the product. Continue the process until all ice glaze, that is seen or felt is removed. In general, the product should remain rigid; however, the ice glaze on certain products, usually smaller sized commodities, sometimes cannot be removed without defrosting partial thawing of the product. Nonetheless, remove all the ice glaze, because it may be is-a substantial part of the package weight.  4. Transfer the product to the weighed sieve (if the product is not already in the sieve) S Without shifting the product, incline the sieve to an angle of 17° to 20° to facilitate drainage and drain (into waste receptacle or sink) for exaetly 2 minutes.  5. At the end of the drain time immediately transfert he en tire p roduct to the tared receiving pan for weighing to determine the net weight. Place the product and sieve tared receiving pan for weighing to determine the net weight. Place the product and sieve tared receiving pan for weighing to determine the net weight. Place the product and sieve tared receiving weight" (recorded in step 2). Record the product net weight on the glazed seafood package worksheet. The package error is equal to the net weight of the product as measured minus the labeled weight. Record the package error on the glazed seafood package worksheet and transfer it to the report form.  7. Repeat steps 3 2 through 6 for each package in the sample, cleaning and drying the receiving pan between package measurements.	

Line item No.	Section No. & Page No.	Title	Action		Comments	
				Chapter 3		
Gravi	metric Test Pr	ocedure for Liquid	s			
			Table 3	3-1. Reference Temperatures for	Liquids	
		If the liquid co	ommodity	Then the volume is determined at the reference temperature of:	Code of Fee Reference*	deral Regulation
		1. Beer		<b>3.9</b> <u>4</u> °C (39.1 °F)	27 CFR, pa	
		2. Distilled Spirit		15 <u>.56</u> °C (60 °F)	27 CFR, pa	
		3. Frozen food - s consumed in the state		At the frozen temperature	21 CFR §10	01.105(b)(2)(i)
		4. Petroleum		15 °C (60 °F)	16 CFR §50	00.8(b)
44	3.1.f. G44	5. Refrigerated for milk and other products labele REFRIGERAT	dairy d "KEEP	4 <b>.4</b> °C (40 °F)		01.105(b)(2)(ii)
	6. Other liquids and wine (e.g., includes liquids sold in a refrigerated state for immediate customer consumption such as soft- drinks, bottled water and others that do not require refrigeration)  *The Code of Federal Regulations of		20 °C (68 °F)  can be accessed online at: http://w	Wine:27 C	)(2)(iii) 16 CFR §500.8(b) FR, part 4.10 (b)	
45	3.2. G46	Gravimetric Test Procedure for Liquids  - Test Procedure Step 4	Tilt the flask gradually so the flask walls are splashed as little as possible <u>as the flask</u> is emptied.			
Other	· Volumetric T	est Procedures				
46	3.4 G49	What other methods can be used to determine the net contents of packages labeled by volume? – Test  Equipment		lass A 500 mL buret that conforms to ASTM 28794-2(2007), "Standard Specification for aboratory Glass Graduated Burets" lass A Pipets, calibrated "to deliver" that conform		EDITORIAL

Line item No.	Section No. & Page No.	Title	Action	Comments
47	3.4.a. G49	What other methods can be used to determine the net contents of packages labeled by volume?  - Test Equipment	<ul> <li>Each disk must have a 20 mm (¾ in) diameter hole through its center and a series of 1.5 mm (¹/16 in) diameter holes 25 mm (1 in) apart a round t he pe riphery of the disk and 3 mm (¹/8 in) from the outer edge. All edges must be smooth.</li> <li>Partial i mmersion t hermometer (or equivalent) with 1 °C (2 °F) g raduations and a - 35 °C t o + 50 °C (- 30 °F to + 120 °F) a ccurate to at least 1 °C (1 °F) graduations, and w ith a t olerance of ± 1 °C (± 2 °F).</li> </ul>	EDITORIAL
48	3.4.b. G49	How is the volume of oils, syrups, and other viscous liquids that have smooth surfaces determined? Step 2.	2. Bring the temperature of both the liquid and the water to be used to measure the volume of the liquid to the reference temperature specified in Table 3-1. Reference Temperatures for Liquids. Verify with a thermometer that product has maintained the reference temperature.	
Mayor	nnaise and Sal	ad Dressing		
49	49 3.5 G50 New dressing, and o ther water i mmiscil that d o n ot h ave s mooth and l e		3.5 How i s t he vol ume of mayonnaise, salad dressing, and o ther water i mmiscible pr oducts that d o n ot h ave s mooth an d l evel s urfaces determined?	
Test V	iscous Materia	als		
50	3.9 G60	Such as Caulking Compounds and Pastes	Calibrate the density cup gravimetrically with respect to the contained volume using the procedure in ASTM E <u>5</u> 42-( <u>2007</u> ), "Standard Practice for Calibration of Laboratory Volumetric Apparatus."	EDITORIAL
Peat N	Aoss			
51	3.10.a. G62	How are packages of peat and peat moss labeled by compressed volume testing?	Take three measurements (both ends and middle) of e ach di mension a nd ca lculate t heir a verage.  Multiply t he averages t o o btain t he co mpressed cubic volume.  (Modify the second sentence to add the double-underlined word and graphic: )  For e ach di mension (length, w idth, he ight) take three equidistant measurements, take the average of e ach r espective di mension a nd multiply t o determine the cubic measure as follows:  Average h eight x average width x average length = cubic measurement	

Line item No.	Section No. & Page No.	Title	Action	Comments			
		<u> </u>	Peat Moss  3.8 Gubic Feet				
Mulch	Mulch and Soils Labeled by Volume						
52	3.11.b. G65	Mulch and Soils Labeled by Volume	Modify table – The table format was simplified and the SI units were changed to millimeters.	EDITORIAL			

Line item No.	Section No. & Page No.	Title		Action		Comments		
	Table 3-4. Specifications for Test Measures for Mulch and Soils							
	Nominal Volume of Test Measure	Interior Wall Dim	Interior Wall Dimensions *		Marked Intervals on Interior Walls ***	Volume Equivalent of Marked Intervals		
		Length	Width	Height **				
	30.2 L (1.07 ft <sup>3</sup> ) for testing packages that contain less than 28.3 L (1 ft <sup>3</sup> or 25.7 dry qt)	213.4 mm (8. <u>4</u> in)	203.2 mm (8 in)	736.6 mm (29 in)	12.7 mm (½ in)	524.3 mL (32 in <sup>3</sup> )		
	28.3 L (1 ft <sup>3</sup> )	304.8 mm (12 in)	304.8 mm (12	304.8 mm	1	1 179.8 mL		
	56.6 L (2 ft <sup>3</sup> )	304.8 mm (12 in)	in) 304.8 mm (12 in)	(12 in) 685.8 mm (27 in)		(72 in <sup>3</sup> )		
		406.4 mm (16 in)	228.6 mm (9 in)	685.8 mm (27 in)				
	84.9 L (3 ft <sup>3</sup> )	304.8 mm (12 in)	304.8 mm (12 in)	990.6 mm (48 39 in)				
		406.4 mm	228.6 mm	<del>1219.2</del> 990.6	-			
		(16 in)	(9 in)	mm ( <b>48 39</b> in)				
	level of fill, but must level gage at the back  Notes:  * Other interior dimer does not exceed a bas  ** The height of the t  *** When lines are m  It is recommended the level of the mulch is a	be reinforced if it is not (inside) of the measure assignments are acceptable in e configuration of the est measure may be reparted in boxes, they sat a line indicating the at or near the MAV.	ot thick enough to re re so that the marking if the test measure a package cross-sective duced, but this will should extend to all the	esist distortion. If ags are read over to pproximates the con. Ilimit the volume four sides of the n	the measure has a the top of the mulch onfiguration of the of the package that neasure if possible	package under test and		
53	3.11.d. La Vo pa	ulch and Soils beled by blume – How are ckage errors termined?	Package Error	= Package Net V volume	√olume - Labeled	l EDITORIAL		

Line item No.	Section No. & Page No.	Title	Action	Comments				
Ice Cr	Ice Cream Novelties							
			Note: The following procedure can be used to test packaged products that are solid or semisolid and that will not dissolve in, mix with, absorb, or be absorbed by the fluid into which the product will be immersed. For example, ice cream labeled by volume can be tested using ice water or kerosene as the immersion fluid.					
54	3.12. G66	Ice Cream Novelties	Exception – Pelletized ice cream are beads of ice cream w hich a req uick f rozen w ith l iquid nitrogen. The beads are relatively small, but can vary in s hape and s ize. On A pril 17, 2009, t he FDA i ssued a letter s tating that th is p roduct is considered s emisolid f ood, in a ccordance w ith 21 CFR 101.105(a). The FDA also addresses that the a ppropriate net q uantity of c ontent declaration for pelletized ice cream products be in terms of net weight.					
Fresh	Oysters Label	ed by Volume						
55	Area: 1935 cm <sup>2</sup> (300 in <sup>2</sup> ) or more for each 3.78 L							
Test P	Test Procedure for Cylinders Labeled by Volume							
56	3.14.2.a. G76	How is it determined if the containers meet the package requirements using the volumetric test procedure? Step 4.	Using NIST Technical Note 1079 "Tables of Industrial Gas Container Contents and Density for Oxygen, Argon, Nitrogen, Helium, and Hydrogen" (available on-line at ( <a href="http://www.nist.gov/owm">http://www.nist.gov/owm</a> , determine the value (SCF/CF) from the content tables at the temperature and pressure of the cylinder under test.	EDITORIAL				
57	3.15. G77	Firewood	Editorial: Make 3.15. Main Title, subtitle firewood categories (boxed, crosshatched, bundles & bags).	EDITORIAL				

Line item No.	Section No. & Page No.	Title	Action	Comments
			Chapter 4	
Packa	ges Labeled by	y Count of More th	an 50 Items	
58	4.4. G84	Packages Labeled by Count of More than 50 Items – Audit Procedure	Step 9: Added a minus symbol to the equation between Actual Package Gross Weight and Nominal Gross Weight.	EDITORIAL
Specia	al Test Require		s Labeled by Linear or Square Measure (Area)	
59	4.6.a G88	Are there special measurement requirements for packages labeled by dimensions?	When testing yarn and thread apply tension and use the specialized equipment specified in ASTM D1907-, "Standard Test Method for Linear Density of Yarn (Yarn Number) by the Skein Method," in conjunction with the sampling plans and package requirements described in this handbook.	EDITORIAL
Polyet	thylene Sheetir	ıg		
60	4.7. G90	Which procedures are used to verify the declarations on polyethylene sheeting and bags?  - Test Procedure Step 3.	Updated the year (98) of approval referenced in ASTM Standard D 1505 98-03, "Standard Method of Test for Density of Plastics by the Density Gradient Technique."	EDITORIAL
Packa	ges Labeled by	y Linear or Square	(Area) Measure	
61	4.8. G95	Packages Labeled by Linear or Square (Area) Measure.	Added a minus symbol to the equation between Package Gross Weight and Nominal Gross Weight.	EDITORIAL
Raler	 	Step 11. Procedure for Leng	th	
Daier	ı wine – Test I	Tocedure for Leng	Step 5: Added a minus symbol to the equation	
62	4.9. G89	Equipment	between (Package Gross Weight and Nominal Gross Weight.)	EDITORIAL

Line item No.	Section No. & Page No.	Ti	tle	Action		Comments					
Appendix A. Table											
Table 1-1. Agencies Responsible for Package Regulations and Applicable Requirements											
63	G101 Alcohol, Products		Tobacco,	U.S. Bureau of Alcohol, Tobacco, and Firearms and state and local weights and measures  http://www.atf.treas.gov http://www.atf.gov			EDITORIAL				
64	G103	Table 2-1									
	Table 2-1. Sampling Plans for Category A										
		1	2	3	4	5		6			
	Inspection Lot Size		6 1	Sample Correction Factor	Number of Minus Package Errors Allowed to Exceed the MAV *	Initial Tare Sample Size **		le Size **			
			Sample Size			Glass a Aeros Packa	sol	All Other Packages			
		1 2 2		Apply MAV 8.984 <u>5</u> 2.484				2			
	3 4 5 6 7		3 4 5	1.591 1.24 <del>1</del> 2	-						
			6 7	1. 0.925	0*	2					
	8 9		8 9	0.836 0.769	0			2			
	10 11 12 to 250		10 11 12	0.715 0.672 0.635	-						
	251 to	3 200	24	0.422		3					
	More than 3 200 48 0.2940 1*  * For mulch and soils packaged by volume, see Table 2-10. Exceptions to the Maximum Allowa Variations – 1 package may exceed the MAV for every 12 packages in the sample.						Allowable				
	** If sample size is 11 or fewer, the initial tare sample size and the total tare sample size is 2 samples.  (Amended 2001)(Amended 20XX)										
	(Amende	u 2001 <u>J(AII</u>			Numbers Tables						
65	G115	G115  Appendix B. Random Numbers Tables  The random number tables in Appendix B are composed of the digits from 0 through 9, with approximately equal frequency of occurrence. This appendix consists of 8 pages. On each page digits are printed in blocks of five columns and blocks of five rows. The printing of the table in blocks is intended only to make it easier to locate specific columns and rows					ITORIAL				

Line item No.	Section No. & Page No.	Title	Action	Comments						
Appendix C. Glossary										
66	G123	Glossary	sample correction factor. Students' "t" value for a one sided test at the 3 % confidence level and n is the sample size. The factor as computed is the ratio of the 97. 5 <sup>th</sup> quantile of the student's t-distribution with (n-1) degrees of freedom and the square root of n where n is the sample size.  sample error limit (SEL). A statistical value	EDITORIAL						
	G125	Glossary	computed by multiplying the sample standard deviation times the sample correction factor from Column 3 of Table 2-1. Category A – Sampling Plans for the appropriate sample size. The SEL value allows for the uncertainty between the average error of the sample and the average error of the inspection lot with an approximately 97.5 % level of confidence.	EDITORIAL						
		Appen	dix E. Model Inspection Report Forms							
67	G139		Glazed Seafood Worksheet	Add in report forms from Chapter 2, 2.6						
68	G140		Glazed Seafood Worksheet – Example	Add in report forms from Chapter 2, 2.6						
68	G141		Glazed Seafood Package Report	Add in report forms from Chapter 2, 2.6						
69	G142		Glazed Seafood Package Report – Example	Add in report forms from Chapter 2, 2.6						