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In the Field

Is there a W&M topic that you would like to have appear in the *Weights and Measures Connection*?

How can we better serve our W&M community?

Do you have a safety tidbit to share?

Do you have a W&M event that you wish to post in the *Connection's* calendar?

Submissions can be sent to the Editor, Linda Crown at Linda.Crown@nist.gov

OFFICE OF WEIGHTS AND MEASURES

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Announcing the Availability of a Draft Procedure for Determining the Amount of Purge from Chitterlings

THE NIST OFFICE OF WEIGHTS AND MEASURES REQUESTS COMMENTS ON THE DRAFT PROCEDURE THAT WAS DEVELOPED FOR INCLUSION IN THE NIST HANDBOOK 133, "CHECKING THE NET CONTENTS OF PACKAGED GOODS."

Byline: Ken Butcher

Over the past years, the Office of Weights and Measures (OWM) received requests from several states and meat packers for guidance on how to determine the amount of purge in packages of frozen chitterlings¹ using NIST Handbook 133, "Checking the Net Contents of Packaged Goods."² Since Handbook 133 does not include test procedures or requirements that limit the amount of purge from these products, OWM, in collaboration with several weights and measures inspectors and meat packers, has developed a draft procedure based on existing Handbook 133 procedures and guidance from the U.S. Department of Agriculture (USDA). You are invited to review and evaluate the draft procedure and the proposal to add the procedure and purge limitations to Handbook 133. OWM may submit the proposal to the NCWM this fall for consideration at the 2015 National Conference on Weights and Measures (NCWM) Interim Meeting, so we would like to receive your comments by September 30, 2014.

What are Chitterlings?

The definition of chitterlings is in the 9 CFR Ch. III § 317.8 (30) –

The term "Chitterlings" shall apply to the large intestines of swine, or young bovine animals when preceded with the word "Calf" or "Veal." Meat food products that contain chitterlings or calf or veal chitterlings, in accordance with § 318.6(b)(8) of this subchapter shall

¹ Note that this procedure can also be used to test beef tripe.

² The U.S. Department of Agriculture (USDA) adopted the 2005 edition of the NIST Handbook 133, "Checking the Net Contents of Packaged Goods."

be identified with product names that refer to such ingredients, as for instance, "Chitterling Loaf," "Chitterling Pie," or "Calf Chitterlings and Gravy."

According to the USDA, chitterlings are a popular food served in many parts of the United States, the Caribbean, Latin America, western Asia, and Europe. Also called "chitlins," as defined above, they are the large intestines of swine (hogs) or calves. According to one industry source, chitterlings are eaten year round but about 90 % are sold during the Thanksgiving, Christmas, and New Year holidays. They are also used as casings for some sausages. Chitterlings became a traditional winter food of the South during Colonial times when, before refrigeration, hogs were slaughtered in December. Their texture is similar to calamari (squid). After a lengthy boil, chitterlings are sometimes battered and fried and are commonly served with cider vinegar and hot sauce as condiments.

Chitterlings are Primarily Tested on a Complaint Basis.

When weights and measures inspectors test frozen chitterlings, they determine if the packages contain the labeled net weight and if the amount of purge is 20 % or less than the declared quantity. Inspectors use Section 2.3. "Basic Test Procedure" of Handbook 133 to conduct net weight tests. To determine the amount of purge, inspectors use the equipment and procedure in Section 2.6. "Determining the Net Weight of Encased-in-Ice and Ice Glazed Products" with some modifications to carry out their test. The modifications include thawing the product in the package and applying a purge limit published by the Food Safety and Inspection Service (FSIS) of the USDA. Inspectors defer to the USDA value because a purge limit is not specified in Handbook 133. The USDA recommends that purge determinations be conducted in the plant after packing but before the chitterlings are frozen. State inspections at retail are usually carried out in response to local consumer complaints. Over the past few years, the majority of state inspections have found the purge levels from chitterlings to often be more than 20 %. As early as 2010 inspectors from several states contacted OWM for technical assistance because of disputes with packers over the test procedures used to determine purge results. The states report they found purge from domestic and foreign packers as high as 50 % or more. As a result, packers and inspectors were both looking at packing practices and the test procedure to find an explanation for the high values.

In addition to the test data from inspectors and multiple packers already mentioned, a recent study conducted at Iowa State University on the purge from several brands of frozen chitterlings found purge that ranged from 30 % to 50 %. OWM reviewed the test methods used by the states, Iowa State University, and several chitterling packers to identify opportunities for improving the accuracy and repeatability of the test procedure. A few differences between the test procedures used by packers and state inspectors were found, but overall the approaches to testing appeared to be consistent. Handbook 133 does not include a purge test, and there appears to be a need for a test procedure tailored specifically for use with chitterlings. Adoption and use of a uniform procedure should improve test uniformity and increase the agreement of test results found inside packing plants and at retail locations.

Further study is needed of the methods used to thaw frozen chitterlings.

Calendar 2014

Registration for training in the NIST Office of Weights and Measures is handled by Yvonne Branden at yvonne.branden@nist.gov.

Course descriptions can be viewed on the Office of Weights and Measures website at <http://www.nist.gov/pml/wmd/calendar.cfm> and clicking on the name of the course.

August 26 - 28 (3 days)
NTEP Joint Meeting of: Weighing Sector (Aug. 26 - 27) (2 days) & Software Sector (Aug. 27 - 28) (2 days) - Atlanta, GA
Contact: info@ncwm.net

August 27 (1 hr)
Webinar - Draining Test Measures and Provers
2:30 p.m. - 3:30 p.m.
Class No. 5341

August 28 (2 hr)
Webinar - Document Control and Record Keeping
2:00 p.m. - 4:00 p.m.
Class No. 5299

September 8 - 11 (4 days)
Central Weights and Measures Association (CWMA) Interim Meeting
St. Charles, MO
Contact: info@ncwm.net

September 8 - 19 (2 weeks)
Mass Metrology Seminar
Class No. 5297
NIST/Gaithersburg, MD

September 14 - 18 (5 days)
Western Weights and Measures Association (WWMA) Annual Meeting
Portland, OR
Contact: www.westernwma.org

September 18 (4 hr)
NIST Training at the Western Weights and Measures Association (WWMA) Annual Meeting - Evaluating Performance, Learning Objectives, and Training Effectiveness for Managers
10:00 a.m. - 3:00 p.m.
Class No. 5328
Portland, OR

October 3 - 4 (2 days)
NTEP Measuring Sector Meeting
Raleigh, NC
Contact: info@ncwm.net

October 4 - 8 (5 days)
Southern Weights and Measures Association (SWMA) Annual Meeting
(con'd pg. 3)

Thawing out large packages of chitterlings takes an extensive amount of time and is labor and resource intensive. For example, if a water bath is used, a large amount of warm water is needed to thaw out a sample of 12 - 10 pound buckets. If quicker thawing techniques could be identified, they may improve productivity and reduce costs for both packers and officials. Another effort that may benefit packers would be to identify and share good packing and filling practices to help industry reduce variations in their packing process. The purge values on different lots tested by the states and in the university study varied significantly and variations between a few packers were noted. Reducing variability is often beneficial to packers and consumers and can sometimes be achieved with minor changes in the filling process.

Perhaps the most significant issue that needs further study is the 20 % limit which ostensibly is appropriate for fresh chitterlings but may be too low for frozen chitterlings. Several packers reported that they target their purge levels for fresh chitterlings to be below 7 % to 10 % as a way to comply with FSIS requirements and avoid consumer complaints. Yet, some chitterlings from packers that target those low purge values still do not meet the 20 % limit when thawed and tested using the modified Handbook 133 procedure. A different purge limit for frozen chitterlings may be justified because the cell walls are destroyed during freezing (the breaching of the cell wall releases fluid that increases purge).

To download the draft procedure, go to:

<http://www.nist.gov/pml/wmd/pubs/upload/chitterling-test-procedure-final-aug14-2014.pdf>

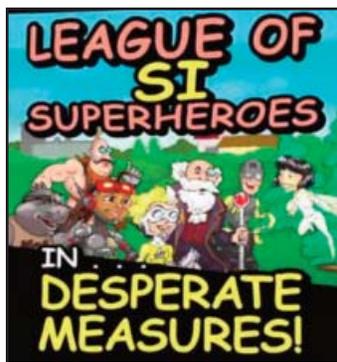
Comments can be submitted to Ken Butcher at kbutcher@nist.gov.

Outreach

Introducing the League of SI Superheroes

Byline: Elizabeth Gentry

Enjoy a new comic book-style video animation featuring the “League of SI Superheroes,” which is available on the NIST YouTube Channel (<https://www.youtube.com/watch?v=5ZHpOojFtH8>). The NIST Public Affairs Office (PAO) developed the video to help middle school students learn about the seven base measurement units. In their first adventure, *Desperate Measures*, the SI Superheroes use the power of measurement to help a stranded soccer player get home! The cast of characters include: Mole, Professor Second, Monsieur Kilogram, Mizz Ampere, Dr. Kelvin, Meter Man, and Candela. Be sure to add your comments on the NIST YouTube Channel and let us know what you think.



The NIST Office of Weights and Measures
 homepage: <http://www.nist.gov/pml/wmd/index.cfm>

Raleigh, NC
 Contact: info@ncwm.net

October 5 (4 hr)
 NIST Training at the Southern Weights and Measures Association (SWMA) Annual Meeting - Evaluating Performance, Learning Objectives, and Training Effectiveness for Managers
 8:00 a.m. to 12:00 p.m.
 Class # 5327
 Raleigh, NC

October 15 - 16 (2 days)
 Northeastern Weights and Measures Association (NEWMA) Interim Meeting
 Norwich, CT
 Contact: info@ncwm.net

October 19 - 23 (5 days)
 Combined Regional Measurement Assurance Program*
 Class No. 5157
 St. Louis, MO

October 20 - 24 (5 days)
 Liquefied Petroleum Gas (LPG) Liquid-Measuring Systems Training
 Class No. 5342
 Cheyenne, WY

October 22 - 24 (3 days)
 HB 130 - Packaging and Labeling
 Class No. 5323
 Fort Worth, TX

November 3 - 7 (5 days)
 Fundamentals of Metrology
 Class No. 5309
 NIST/Gaithersburg, MD

November 4 - 7 (4 days)
 HB 130 - Packaging and Labeling
 Class No. 5324
 Lake Mary, FL

2015

January 18 - 21 (4 days)
 National Conference on Weights and Measures Interim Meeting
 Daytona Beach, FL
 Contact: info@ncwm.net

January 26 - 30 (5 days)
 Fundamentals of Metrology
 Class No. 5329
 NIST/Gaithersburg, MD

February 12 (2 hr)
 Webinar - Conducting an Effective Management Review
 2:00 p.m. to 4:00 p.m.
 Class No. 5295

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NIST TRAINING

AT

WWMA--EVALUATING PERFORMANCE, LEARNING OBJECTIVES AND TRAINING EFFECTIVENESS FOR MANAGERS

WHEN: Thursday, September 18, 2014, 10:00 a.m. to 3:00 p.m.

WHERE: WWMA Meeting, Portland, Oregon

CLASS No.: 5328

REGISTRATION DEADLINE: Thursday, September 4, 2014

REGISTER HERE: <https://tsapps.nist.gov/WMD/>

ADDITIONAL INFORMATION HERE:

<http://www.nist.gov/pml/wmd/5328.cfm>

&

NIST TRAINING

AT

SWMA--EVALUATING PERFORMANCE, LEARNING OBJECTIVES AND TRAINING EFFECTIVENESS FOR MANAGERS

WHEN: Sunday, October 5, 2014; 8 a.m. to 12:00 p.m.

WHERE: SWMA Meeting, Raleigh, North Carolina

CLASS No.: 5327

REGISTRATION DEADLINE: Friday, September 26, 2014

REGISTER HERE: <https://tsapps.nist.gov/WMD/>

ADDITIONAL INFORMATION HERE:

<http://www.nist.gov/pml/wmd/5327.cfm>

Purpose: This half day session will explore the role of the manager in ensuring effective training and implementation on the job for performance improvements.

Learning Objectives: At the end of this half day session, using notes, provided resources, and insights from other participants in the class, participants will be able to:

- Clarify your role as a manager in ensuring successful and effective application of employee training;
- Evaluate and match learning objectives to employee performance requirements;
- Identify and evaluate tools for evaluating the effectiveness of staff training; and
- Identify applicable methods to assess student learning after the training event."

Audience: Training managers and supervisors who want to evaluate training effectiveness.

Instructor: Georgia L. Harris and Carol Hockert

NIST Database Contact: Isabel Chavez at isabel.chavez@nist.gov, (301) 975-2128

National Ice Cream Month

Byline: Elizabeth Gentry

Cool down this summer with a classic frozen dessert and celebrate National Ice Cream Month! Americans are not alone in enjoying a delicious serving of ice cream, consuming about 14 L per capita annually. Not surprisingly, the International Dairy Foods Association (IDFA) reports that about nine percent of all the milk produced by U.S. dairy farmers is used to produce ice cream.

It's estimated that about 98 percent of American households purchase ice cream! No wonder that President Ronald Reagan designated July as National Ice Cream Month and the third Sunday of the month as National Ice Cream Day. This year, National Ice Cream Day was Sunday, July 20, 2014.



Consumers might ask "how is ice cream sold?" According to NIST Handbook 130, *Uniform Laws and Regulations in the Area of Legal Metrology and Engine Fuel Quality* (2014), Uniform Regulation for the Method of Sale of Commodities, factory packaged ice cream and similar frozen products shall be offered for sale or sold by fluid volume (Section 1.7.1. Factory Packaged Ice Cream and Similar Frozen Products [<http://www.nist.gov/pml/wmd/pubs/hb130-14.cfm>] July is Nat). The model Method of Sale Regulation (Section 1.7.2. Pelletized Ice Cream and Similar Pelletized Frozen Desserts) was amended in the

2012 edition to incorporate pelletized ice cream frozen dessert products, which must be sold by net weight.

Ice cream was one of the products tested in the new four-day NIST Handbook 133, Checking the Net Contents of Packaged Goods, Volumetric Checking the Net Contents of Packaged Goods hands-on training course, conducted in February 2014 by Mr. Kenneth Butcher on the NIST campus in Gaithersburg, Maryland. Ice cream novelties can be evaluated using a gravimetric displacement method (Figure 1). (URL to February 2014 class details. <http://www.nist.gov/pml/wmd/5289.cfm>)

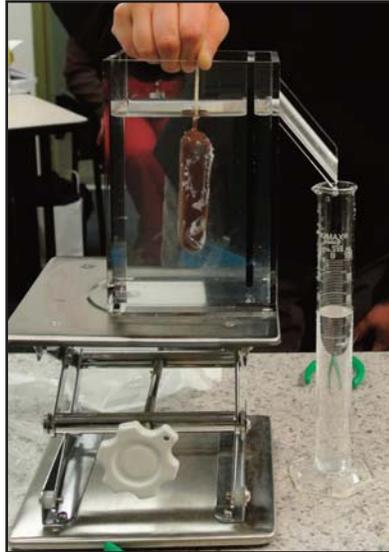


Figure 1. Testing Novelty Ice Cream

In 2012, the International Ice Cream Association (IICA) surveyed their member companies and found that vanilla remains the most popular flavor among their consumers. What's your favorite? Enjoy a scoop of the good stuff and remember: "I scream, you scream, we all scream for ice cream!"

Fun Facts:

- Ice cream is best stored at $-20\text{ }^{\circ}\text{C}$ (or colder) and is easiest to scoop around $-10\text{ }^{\circ}\text{C}$. Consumers can prevent the formation of ice crystals by covering the ice cream container with a large plastic freezer bag when stored in the freezer.
- According to the Guinness World Records:
 - ◊ The largest cup of ice cream weighed 4021 kg and stood 1.96 m tall from the base of the cup to the highest point of the ice cream. The record was achieved by Baskin-Robbins at their headquarters in Canton, Massachusetts, in September 2005.
 - ◊ The largest ice cream cone on record measured 2.81 m in height and was achieved in January 2011 (<http://www.guinnessworldrecords.com/records-3000/largest-ice-cream-cone/>).
- In 1782, George Washington described in his Mount Vernon ledger "a cream machine for ice" (<http://www.mountvernon.org/educational-resources/encyclopedia/ice-cream>).
- "Astronaut Ice Cream" or freeze-dried ice cream has only flown in space one time in 1968 aboard NASA's Apollo 7 (http://education.ssc.nasa.gov/fft_halloffame.asp).
- The Nutrition Facts Label on consumer products can promote healthy eating by telling you about the food you eat. According to the U.S. Department of Agriculture's National Nutrient Database, one 100 g serving of vanilla ice cream (data profile 19095) contains about 21 g sugar, 3.5 g protein, 128 mg calcium, and 207 kcal energy (<http://ndb.nal.usda.gov/ndb/search/list>).

Resources for Students, Teachers, and Consumers:

- National Ice Cream Month - Presidential Proclamation (1984) [<http://www.presidency.ucsb.edu/ws/?pid=40141>]
- International Dairy Foods Association (IDFA) Ice Cream Media Kit

February 26 (2 hr)
Webinar - Internal Auditing Best Practices
2:00 p.m. to 4:00 p.m.
Class No. 5296

March 16 - 27 (2 weeks)
Mass Metrology Seminar
Class No. 5333
NIST/Gaithersburg, MD

March 19 (2 hr)
Webinar - Contract Review
2:00 p.m. - 4:00 p.m.
Class No. 5343

March 26 (2 hr)
Webinar - Document Control and Record Keeping
2:00 p.m. - 4:00 p.m.
Class No. 5344

June 1 - 5 (5 days)
HB 133, "Checking the Net Contents of Packaged Goods," Basic
Class No. 5345
Indianapolis, IN

July 19 - 23 (5 days)
NCSL International Conference 2015
Metrology and the Quality of Life
Orlando, FL
Information: www.ncsli.org

August 13 (2 hr)
Webinar - Contract Review
2:00 p.m. - 4:00 p.m.
Class No. 5334

August 27 (2 hr)
Webinar - Document Control and Record Keeping
2:00 p.m. - 4:00 p.m.
Class No. 5335

October 22 (2 hr)
Webinar - Internal Auditing Best Practices
2:00 p.m. - 4:00 p.m.
Class No. 5339

October 19 - 23 (5 days)
HB 133- "Checking the Net Contents of Packaged Goods," Basic
Class No. 5346
Frankfort, KY

October 26 - November 6 (2 weeks)
Mass Metrology Seminar
Class No. 5340
NIST/Gaithersburg

(con'd pg 6)

*Have a safe and
enjoyable
Labor Day holiday.*

2016

- [<http://www.idfa.org/news-views/media-kits/ice-cream>]
- President George Washington's Ice Cream [<http://www.mountvernon.org/educational-resources/encyclopedia/ice-cream>]
- The Physics of Ice Cream, Chris Clarke 2003 Phys. Educ. 38 248 [link to URL - <http://iopscience.iop.org/0031-9120/38/3/308>]
- The Chemistry of Ice Cream [<http://chem-is-easy.blogspot.com/2013/03/the-chemistry-of-ice-cream.html>]
- Finding Science in Ice Cream – University of Guelph [<https://www.uoguelph.ca/foodscience/sites/uoguelph.ca.foodscience/files/FindingScienceInIceCream.pdf>]
- Science of Ice Cream - Ice Cream Nation [<http://www.icecreamnation.org/science-of-ice-cream/>]
- Activity: Making Ice Cream in a Bag [http://skillstest.edu.gov.on.ca/OSPWeb/jsp/en/big_picture/27_Making%20Ice%20Cream%20in%20a%20Bag_SNC%201P_TFH%203E_BP.pdf]
- Tasty Phase Change Lab – University of Virginia [<http://galileo.phys.virginia.edu/outreach/8thGradeSOL/TastyPhaseChange.htm>]

February 11 (2 hr)
Webinar - Conducting an Effective Management Review
2:00 p.m. - 4:00 p.m.
Class No. 5336

March 3 (2 hr)
Webinar - Internal Auditing Best Practices
2:00 p.m. - 4:00 p.m.
Class No. 5337

*Invitation Only

**Limited to State Laboratory Program Participants

WEIGHTS AND MEASURES IN THE NEWS

WVXU Cincinnati

New truck hits roads to make them safer

<http://wvxu.org/post/new-truck-hits-roads-make-them-safer>

Houston Chronicle

Energy

Regulators can't settle natural gas fuel pricing measure

<http://www.houstonchronicle.com/business/energy/article/Regulators-can-t-settle-natural-gas-fuel-pricing-5642628.php>

NIST/Tech Beat

Fill'er Up: NIST Develops Prototype Meter Test for Hydrogen Refueling Stations

<http://www.nist.gov/pml/div685/hydrogen-meter-072114.cfm>

CarolinaLive.com

Are you getting cheated at the pump?

<http://www.carolinalive.com/news/story.aspx?id=1067111#.U7wYPPldWSo>

Sentinel (gmnews.com)

Cash-for-gold shop receives summonses after police sting

http://em.gmnews.com/news/2014-07-10/Front_Page/Cashforgold_shop_receives_summonses_after_police_s.html

JANIS (www.janis.com)

physicstoday

A more fundamental International System of Units

<http://scitation.aip.org/content/aip/magazine/physicstoday/article/67/7/10.1063/PT.3.2448;jsessionid=1tnw7iq22e6vj.x-aip-live-02>