



# Testing for Compliance

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The laboratory and testing scenes shown in this webinar are intended solely as illustrations and depictions of the kinds of tests performed by Bureau Veritas on a variety of products. These scenes are not intended to fully or comprehensively portray any specific procedure or laboratory protocol, nor to suggest that these procedures or protocols are appropriate or relevant for a particular product.

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# Agenda

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- ▶ **FTC Compliance**
  - Fiber Labeling
  - Other Label
  - Care Labeling
- ▶ **CPSC Compliance - Apparel**
  - 16 CFR 1610
  - 16 CFR 1611
- ▶ **Other Contractual Requirements**
- ▶ **Jewelry**
- ▶ **Performance - Jewelry**





## **Fiber Labeling:**

- **16 CFR 300**
- **16 CFR 303- Legal Identification & Country of Origin**
- **Fur Labeling**
- **16 CFR 423**

## ► Textile Products: What is covered, examples..

- Clothing (except hats & shoes)
- Curtains and Draperies
- Floor Coverings – rugs, carpets, mats
- Towels and wash cloths
- Scarves
- Socks and hosiery
- Bedding – sheets, blankets, comforters, pillows, pillowcases, quilts, bedspreads, and pads
- Tablecloths and napkins
- Cushions
- Sleeping bags



## ► Textile Products: what is exempt, examples...

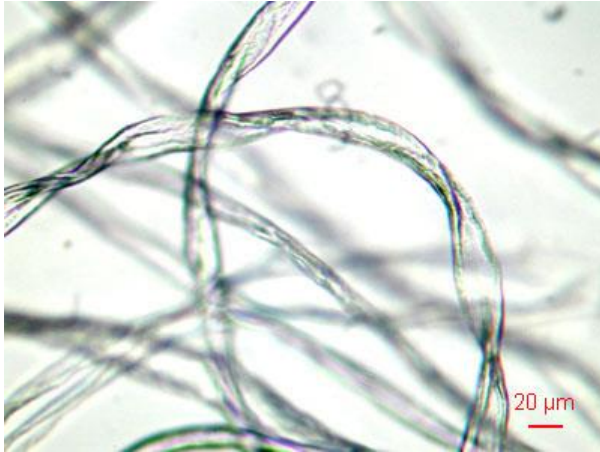
- Bags (tote, diaper, laundry)
- Wall decorations
- Shoes, overshoes, boots, slippers and all outer footwear. Slippers made of wool is covered under the Wool Act
- Headwear (hats, caps or anything worn exclusively on the head). A wool hat is covered under the Wool Act
- Stiffenings, trimmings, facings, or interfacings
- Sewing threads
- Textiles used in handbags



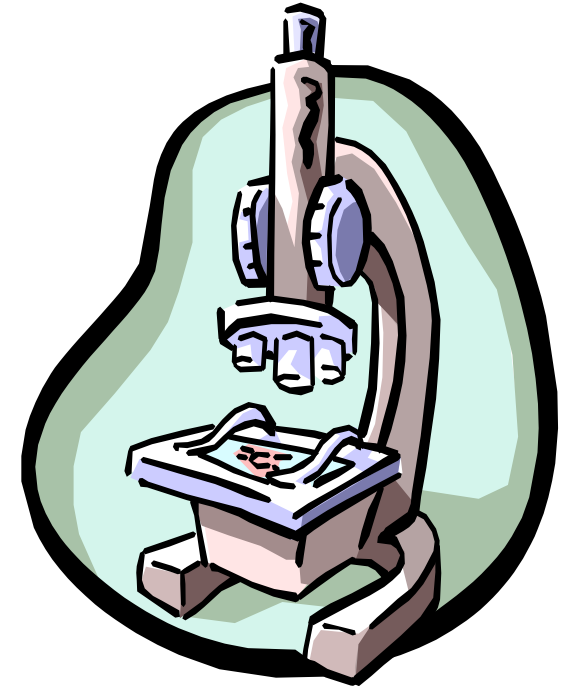
## ► Exempt unless you say something about fiber, example...

- Belts
- Suspenders
- Coated fabrics and those parts of textile products made of coated fabrics
  - A coated fabric is any fabric which is coated, filled, impregnated, or laminated with a continuous-film- forming polymeric composition, and the weight added to the base fabric is at least 35% of the weight of the fabric before coating

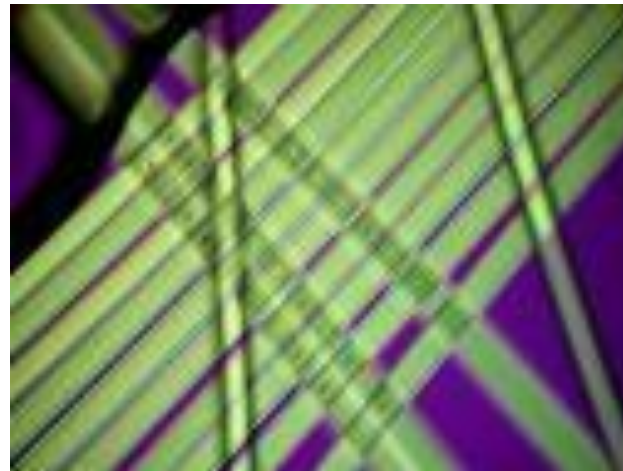
# Test: Fiber Content – AATCC 20 / 20A



Cotton



Nylon





- ▶ Generic fiber names and percentage of each fiber must be listed in descending order of predominance by weight



- ▶ Actual fiber content must conform to labeled fiber claim

**For Blends:  $\pm 3.0\%$  Tolerance  
For Single Fibers: “0” Tolerance**

- ▶ Tolerance allows for a small amount of unintended inconsistency in the manufacturing process
- ▶ Fiber content cannot knowingly be misrepresented

# United States: 16 CFR 303 - Legal Identification

- ▶ Textile labels must identify either the company name or Registered Identification Number of the manufacturer, importer, or another firm marketing, distributing, or otherwise handling the product
- ▶ The prefix “RN” or “WPL” is part of the Registered Identification Number and must precede the numerals on the label
- ▶ If the company name is used, it must be identified in full under which the company is doing business. It cannot be trademark, trade name, brand etc.



# United States: 16 CFR 303 - Country of Origin Labeling



- ▶ Imported and domestic products must identify the country where they were processed or manufactured. Requirements for FTC and US Customs.
- ▶ Products made entirely in the U.S. of U.S. made materials must be labeled “Made in U.S.A.”
- ▶ Consult US Customs regarding correct country of origin

# United States: 16 CFR 300/303 - Label Location

- ▶ The country of origin must always be on the front side of the label. Fiber content and company identification may appear on the reverse, and the reverse end must be accessible to the consumer
- ▶ The fiber content label must appear in a conspicuous location on the product



# United States – Faux Fur Labeling

## ► New York State Faux Fur Labeling Law:

### ► Definition:

- Faux Fur: Artificially manufactured fur which is made to resemble real fur but which is not derived from animals
- All apparel (including footwear, clothing, hats, gloves and all other wearable items) sold in New York State, which contains faux fur, must contain either a permanent label attached to the garment, OR a hangtag OR sticker affixed in a conspicuous place stating that the article contains “faux fur”





# **United States Care Labeling: 16 CFR 423**

# United States - Care Labeling

- ▶ All textile wearing apparel used to cover or protect the body except shoes, gloves, and hats must have a care label
- ▶ Handkerchiefs, belts, suspenders, neckties, and non-woven garments made for one-time use are exempt
- ▶ Must be attached permanently and be legible for useful life of the product
- ▶ Labels must be fastened so that they can be easily found by customers at the point of sale.
- ▶ If labels cannot be visibly seen due to packaging, care information must appear on the outside of the package





# United States: 16 CFR 423 - Care Labeling

- ▶ There must be a reasonable basis for all care instructions, including warnings. Experience, industry expertise and testing can serve as reasonable basis
- ▶ Label must provide complete instructions about regular care for the garment and provide any warnings
  - **For Example:** if a pair of pants is labeled for washing, consumers may assume they can iron them. If the pants would be harmed by ironing, the label should read, “Do not iron”








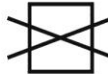

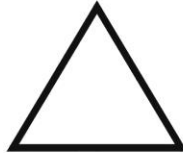


# United States: 16 CFR 423 - Care Labeling

## ► Wash Instructions:





















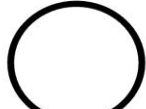








1. Washing by hand or by machine and provide water temperature if hot water will harm product
2. Bleaches:
  - a. If all commercially available bleaches can be used on a regular basis without harming the product, the label does not have to mention bleach.
  - b. If using chlorine bleach on a regular basis would harm the product and not non-chlorine bleach, the label must say, “Only non-chlorine bleach when needed”
  - c. If all commercially available bleaches would harm the product, the label must say, “No bleach” or “Do not bleach”
3. The label must say whether the product should be dried by machine or some other method and provide temperature if high temperature will harm the product
4. Ironing information must be provided if ironing will be needed on a regular basis and provide temperature if hot iron will harm the product
5. Dry Cleaning Must include limitations if needed ex.: Dryclean - Petroleum solvent only
6. Warning: The label must contain a warning like “Do not”, “No”, “Only” etc. to warn against harmful procedures

# United States: 16 CFR 423 - Care Labeling

## ► ASTM Standard D5489-96c

<div></div> <div>Wash</div>	<div><div><div><u>Machine wash cycles</u></div><div><div>normal</div><div>permanent press</div><div>delicate / gentle</div><div>hand wash</div></div></div><div><div><u>Water temperatures (maximum)</u></div><table><thead><tr><th>(200F)</th><th>(160F)</th><th>(140F)</th><th>(120F)</th><th>(105F)</th><th>(65 - 85F)</th></tr></thead><tbody><tr><td>95C</td><td>70C</td><td>60C</td><td>50C</td><td>40C</td><td>30C</td></tr><tr><td>●●●●</td><td>●●●●</td><td>●●●</td><td>●●●</td><td>●●</td><td>●</td></tr></tbody></table><div>symbol(s)</div></div></div>	(200F)	(160F)	(140F)	(120F)	(105F)	(65 - 85F)	95C	70C	60C	50C	40C	30C	●●●●	●●●●	●●●	●●●	●●	●	<div><div><div>do not wash</div></div><div><div>do not bleach</div></div><div><div>do not dry (used with do not wash)</div></div><div><div>do not iron</div></div></div>
(200F)	(160F)	(140F)	(120F)	(105F)	(65 - 85F)															
95C	70C	60C	50C	40C	30C															
●●●●	●●●●	●●●	●●●	●●	●															
<div></div> <div>Bleach</div>	<div><div><div>any bleach when needed</div></div><div><div>only non-chlorine bleach when needed</div></div></div>																			

# United States: 16 CFR 423 - Care Labeling

<div></div> <div>Dry</div>	<div><div><div><div><u>Tumble dry cycles</u></div><div></div><div>normal</div></div><div><div></div><div>permanent press</div></div><div><div></div><div>delicate / gentle</div></div></div><div><div><div><u>Tumble dry cycles</u></div><div></div><div>any heat</div></div><div><div></div><div>high</div></div><div><div></div><div>medium</div></div><div><div></div><div>low</div></div><div><div></div><div>no heat / air</div></div></div><div><div><div></div><div>line dry / hang dry</div></div><div><div></div><div>drip dry</div></div><div><div></div><div>dry flat</div></div></div></div>	<div><div><div>Additional instructions (in symbols or words)</div><div><div></div><div>Do not wring</div></div><div><div></div><div>do not tumble dry</div></div><div><div></div><div>in the shade (added to line dry, drip dry, or dry flat)</div></div><div><div></div><div>no steam (added to iron)</div></div></div></div>
<div></div> <div>Iron</div>	<div><div><div><div><u>Iron-dry or steam</u></div><div>maximum temperature</div></div><div><div></div><div>200C (390F) high</div></div><div><div></div><div>150C (300F) medium</div></div><div><div></div><div>110C (230F) low</div></div></div></div>	
<div></div> <div>Dryclean</div>	<div><div><div><div><u>Dryclean - normal cycle</u></div><div><div><div></div><div>any solvent</div></div><div><div></div><div>any solvent except trichloroethylene</div></div><div><div></div><div>Petroleum solvent only</div></div></div><div><div></div><div>do not dryclean</div></div></div></div></div>	<div><div><div><div><u>Dryclean - additional instructions</u></div><div><div><div></div><div>short cycle</div></div><div><div></div><div>reduce moisture</div></div><div><div></div><div>low heat</div></div><div><div></div><div>no steam finishing</div></div></div></div></div></div>

# Test: 16 CFR 423 - Care Labeling

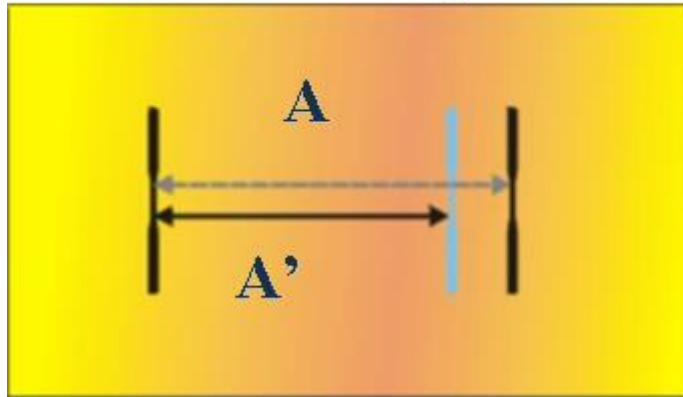
- ▶ Testing Related to Care Label
  - Dimensional Stability
  - General Appearance to Home Laundering
  - Colorfastness to Washing / Dry Cleaning
  - Colorfastness to Crocking
  - Colorfastness to Water
  - Colorfastness to Chlorine and Non-chlorine Bleach

# Test: Dimensional Stability - AATCC 135 / 150

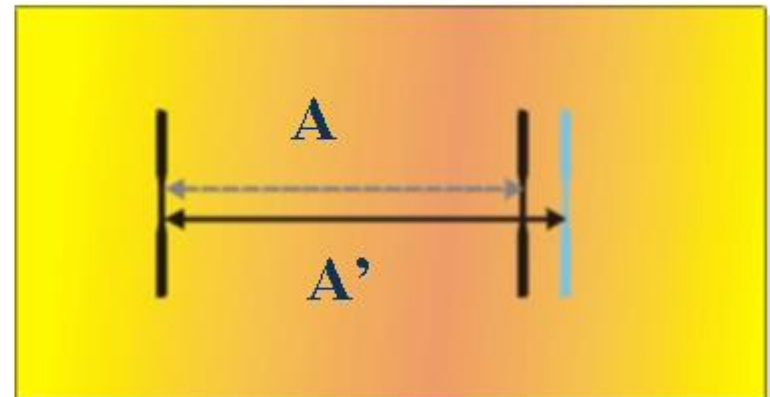
Determination of dimensional stability (shrinkage or growth) in woven and knit fabrics when subjected repeated home laundering procedures

$$\% \text{ Dimensional} = 100 \times \text{Change} \frac{(A - A')}{A}$$

Shrinkage



Growth



# Test: Dimensional Stability - AATCC 135 / 150





# Test: Appearance – AATCC 124/143 or Visual After Laundering

## ► Effects of Home Laundering / Dry Cleaning

- It pertains to the evaluation of appearance of a product (distortion, pilling, hand, trim compatibility) after washing or dry cleaning





## Test : Appearance – Visual After Laundering

### Poor Appearance (Color loss) After Home Laundering



## Test : Appearance –Visual After Laundering

Poor  
Colorfastness  
to Home  
Laundering



## Test : Appearance –Visual After Laundering

Poor  
Colorfastness  
to Home  
Laundering



# Colorfastness: CF to Home Laundering





# Colorfastness: CF to Accelerated Laundering - AATCC 61

This test is designed to evaluate the colorfastness properties of textiles which are intended to be laundered frequently



**Launder-o-meter**

# Colorfastness: CF to Accelerated Laundering - AATCC 61



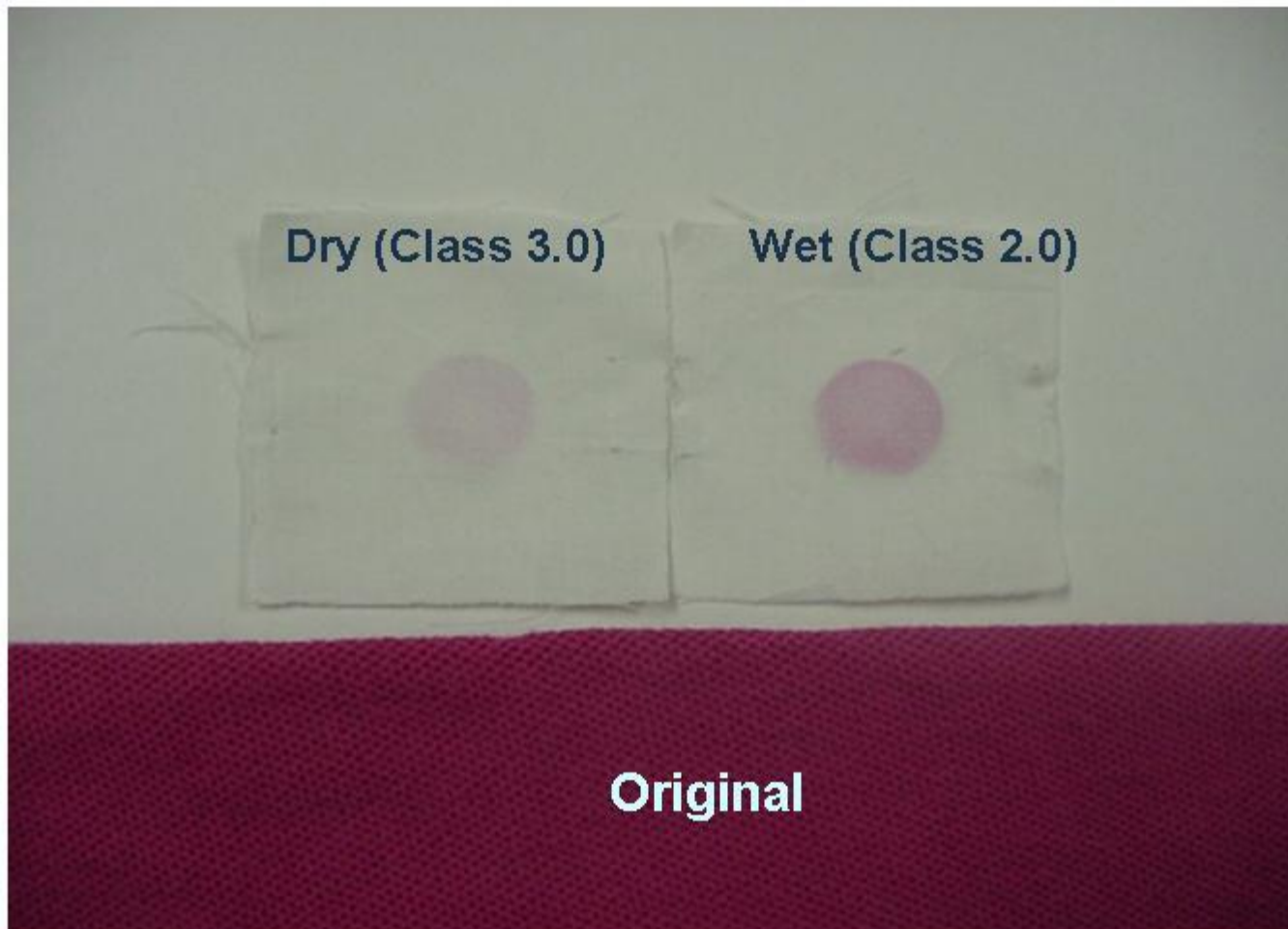
# Colorfastness: CF to Crocking - AATCC 8 and 116



Vertical Crockmeter

# Colorfastness: CF to Crocking

## Poor Colorfastness to Crocking





# Colorfastness: CF to Chlorine Bleach

This test is designed to evaluate the colorfastness performance of a textile fabric when subjected to the action of chlorine bleach



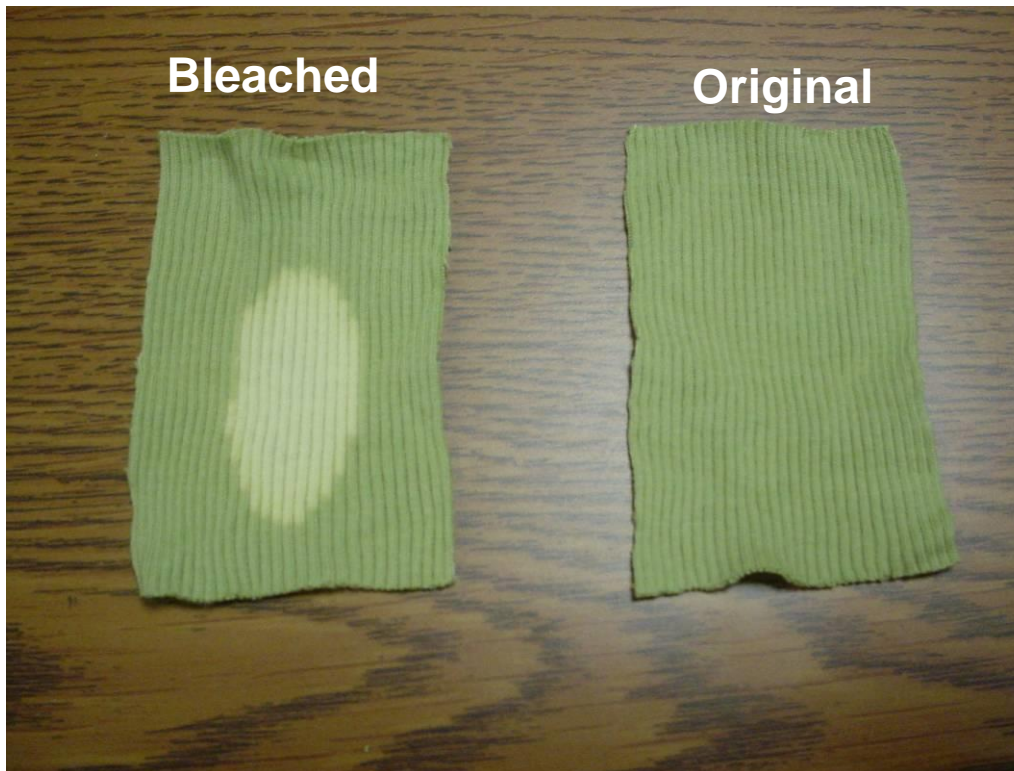
**Original Sample**



**Tested Sample**

# Colorfastness: CF to Non-Chlorine Bleach

This test is designed to evaluate the colorfastness performance of a textile fabric when subjected to the action of non-chlorine bleach



# Colorfastness: CF to Washing

**Poor  
Colorfastness  
To Bleaching**





# Flammable Fabrics Act Regulations

- **General Wearing Apparel - 16 CFR 1610**
- **Vinyl Plastic Film – 16 CFR 1611**



# Flammability Objective

- ▶ To reduce danger or injury and loss of life
- ▶ Provides on a national basis, standard test methods of testing and rating the flammability of textiles and textile products for clothing use
  - Testing Includes:
    - 16 CFR 1610 - Standard for the Flammability of Clothing Textiles
    - 16 CFR 1611 - Standard for the Flammability of Vinyl Plastic Film
    - 16 CFR 1615 / 1616 - Standard for the Flammability of Children's Sleepwear: Sizes 0 through 6x and Sizes 7 through 14



# Flammability of Apparel: 16 CFR 1610

## ► Standard For Flammability of Clothing Textiles

- The standard establishes three classes of flammability for classifying textiles and warns against the use of textiles that have burning characteristics unsuitable

## ► Class 1 - Normal Flammability is most widely used as minimum acceptance criteria

- Fabric meets minimum requirements of the standard and has no unusual burning characteristics
- Plain Surface Fabric: Average burn time is 3.5 seconds or more
- Raised Surface Fabric: Average burn time is 7 seconds or more
- Note: Exemptions may apply based on Fabric weight or Fiber content.



# Flammability of Clothing Textiles: US Recall



## US Recall:

The jackets do not meet the Standard for the Flammability of Clothing Textiles under the Federal Flammable Fabrics Act.

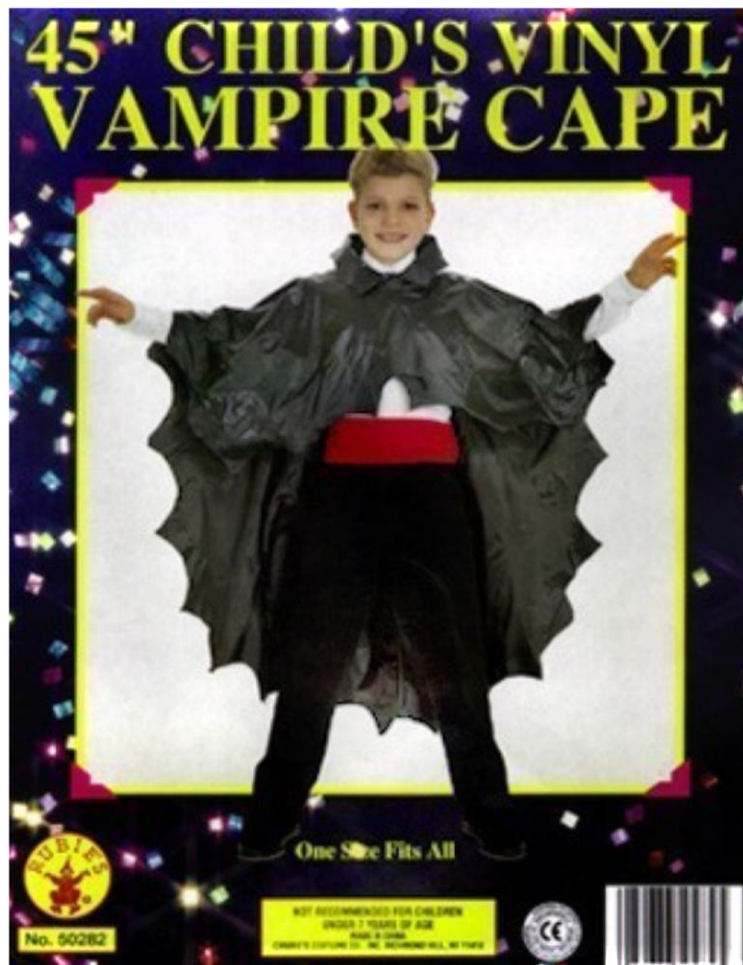
## ► Flammability of Vinyl Plastic Film : 16 CFR 1611

- Applies to apparel composed of non-rigid, unsupported vinyl plastic film, including transparent, translucent, and opaque material, whether plain, embossed, molded or otherwise surface treated
- Especially important for raincoats and costumes
- Burn time shall not exceed 1.2 inches per second judged by the average of 5 trials of the lengthwise direction, and 5 trials transverse to the direction of processing





# Flammability of Vinyl Plastic Film: US Recall



## US Recall:

The cape fails to meet federal mandatory standards for flammability, could ignite readily and present a serious risk of burn injuries to children.



# **Other Tests – Contractual Requirements**

- ▶ **ASTM D 1776 - Standard Practice for Conditioning and Testing Textiles**
  - To make reliable comparisons among different materials and laboratories, it is necessary to standardize the temperature and humidity conditions to which the products are subjected



# Fabric Weight

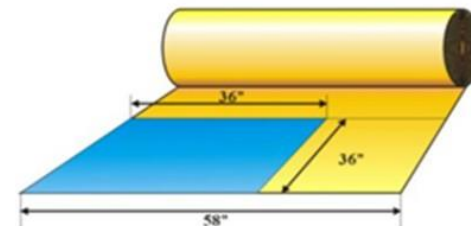
## ► ASTM D3776

The measurement of mass per unit area of textile fabrics in garment or piece goods form.  
It is determined by the fabric count and the yarn size

$$\text{Ounce per square yard (oz / yd}^2\text{)} = \frac{\text{Weight in oz}}{\text{Unit area in sq yard (36'' x 36'')}}}$$



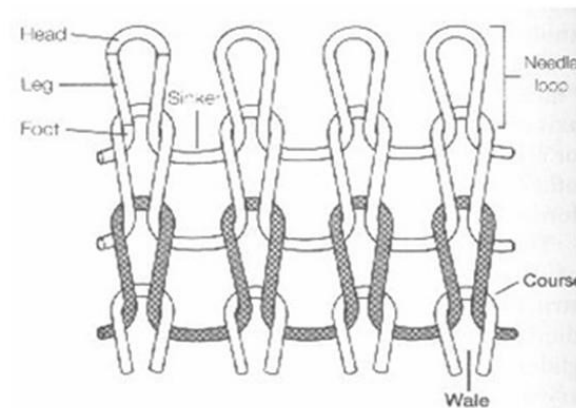
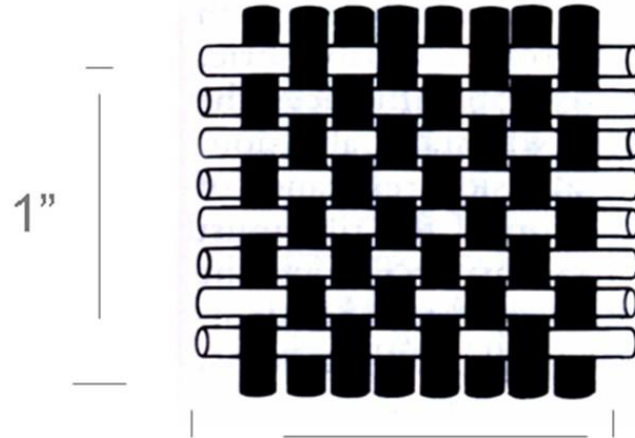
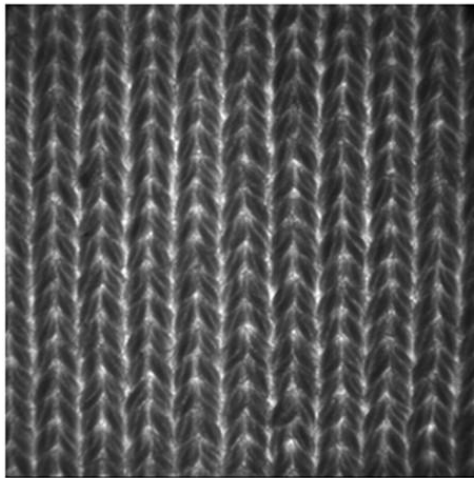
Die Cutter



# Thread Count

## ASTM D3775

### Test Method for Warp (End) Count and Filling (Pick) Count of Woven Fabric





# **US Jewelry Requirements – Adult**

# Labeling Requirements

- ▶ Uniform Packaging and Labeling Requirements:
  - Identity of product
  - Name and address of manufacturer, packer or distributor
  - Net quantity of contents (expressed in terms of weight/mass, size, measure, numerical count or any combination thereof that is most appropriate).
- ▶ Country of Origin Requirements
- ▶ 16 CFR 23 Guide for Jewelry, Precious Metals, and Pewter





# Analytical Testing - Jewelry



- ▶ Lead is a toxic substance, exposure to which can produce a wide range of adverse health effects. These effects include neurological damage, delayed mental and physical development, attention and learning deficiencies, and hearing problems.
- ▶ Lead stabilizers are added to PVC compounds to prevent degradation from heat and light, and to improve processing properties.
- ▶ Lead compounds are also used as a pigment in paints, dyes, and ceramic glazes to provide bright, vibrant colors and increased durability.

# California – Jewelry Law and Prop 65 Settlement



- ▶ Divided into three categories of requirements for lead
  - Must meet Class 1, Class 2, or Class 3 Requirements
  - Body piercing jewelry
- ▶ Scope includes: anklet, arm cuff, bracelet, brooch, chain, crown, cuff link, hair accessories, earring, necklace, pin, ring, tie clip, ornamental watches, jewelry placed in the mouth that are NOT for first time body piercing or children's jewelry; detachable jewelry on clothing and footwear (such as charms)
- ▶ Testing conducted on accessible and inaccessible materials.
- ▶ Recommend bill of material documentation for material identification.
- ▶ Component part testing and compositing of 3 like materials are allowed.

# California – Jewelry Law and Prop 65 Settlements



## ► Class 1 Materials

- Stainless or surgical steels, karat gold; sterling silver; platinum group metals, pearl, glass, ceramic, crystal and certain gemstone – No Testing
  - **Excludes** aragonite, bayldonite, boleite, cerussite, crocoite, ekanite, linarite, mimetite, phosgenite, samarskite, vanadinite and wulfenite
- Natural decorative materials
  - bone, feathers, leather, shell, wood, etc), elastic, fabric, ribbon, rope, and string with no intentionally added (less than 200 ppm lead)
- Adhesives – No Testing

## ► Class 2 Materials – Must meet the following lead limits

- Electroplated metal - <6% (60,000ppm)
- Unplated metal - <1.5% (15,000ppm)
- Plastic or rubber, including acrylic, polystyrene, plastic beads and stones, and polyvinyl chloride (PVC) - <0.02% (200ppm)
- Dye or surface coating - <0.06% (600ppm)

## ► Class 3 Materials – If not class 1 or class 2 must be <0.06% (600 ppm) lead

## ► Body Piercing Materials

- Only applicable when placement in a new piercing or a mucous membrane
- Must be made exclusively of the following materials:
  - Surgical implant stainless steel
  - Surgical implant grades of titanium
  - Niobium (Nb)
  - Solid 14 karat or higher white or yellow nickel-free gold
  - Solid platinum
  - Dense low porosity plastic (e.g., Tygon or PTFE) with no intentionally added lead (less than 100 ppm)
- Documentation required for material type. Only testing conducted to verify the lead content of Tygon or PTFE plastic.

## ► Cadmium Content

- 300 ppm total cadmium for coatings and substrates
- Cubic zirconia, glass, rhinestones, and ceramic materials of jewelry are exempt
- Testing is not conducted on:
  - stainless or surgical steels,
  - karat gold; sterling silver; platinum group metals,
  - pearls,
  - certain gemstones (excluding aragonite, bayldonite, boleite, cerussite, crocoite, ekanite, linarite, mimetite, phosgenite, samarskite, vanadinite and wulfenite),
  - adhesives
- Testing is conducted on accessible and inaccessible materials.
- Recommend bill of material documentation for material identification.
- Component part testing and compositing of 3 like materials is allowed.

# California – Prop 65 Jewelry Settlements

## ► Lead – Another settlement

- All components must meet the following requirements
  - 90 ppm for surface coatings
  - 200 ppm for substrates
- Accessible and inaccessible materials are tested
- Component part testing and compositing (3 similar materials) are allowed.
- Non-suspect materials, except leather, as defined by CPSC (16 CFR 1500.91) are not tested.

## ► Phthalates

- 1000 ppm DEHP, BBP, DBP
- Applicable to all accessible PVC, soft plastic, vinyl, and synthetic leather substrates
- Soft plastic defined as plastic materials with a shore A hardness <90

# ASTM F2999 Adult Jewelry Standard



- ▶ This is a voluntary standard
- ▶ Total lead requirement is the same as CA Jewelry Law
- ▶ Acceptable body piercing materials list is the same as CA Jewelry Law
- ▶ Total cadmium in substrate
  - ▶ Must meet either total or soluble/extractable limit
  - ▶ 1.5% total cadmium for accessible plastics and metals
  - ▶ total testing - will composite up to 3 plastics – no compositing for metals
  - ▶ 75 ppm extractable cadmium for plastics that exceed total limit and swallowable – no compositing
  - ▶ 200 micrograms of cadmium per component for metals that exceed total limit and swallowable – no compositing
  - ▶ 18 micrograms of cadmium per component (metal or plastic) that exceed the total limit and are not potentially ingestible or swallowable but may be mouthed

# ASTM F2999 Adult Jewelry Standard

- ▶ Soluble heavy metals in accessible surface coatings
  - ▶ Antimony 60ppm, Arsenic 25ppm, Barium 1000ppm, Cadmium 75ppm, Chromium 60ppm, Mercury 60ppm, Selenium 500 ppm
- ▶ Nickel in metal in prolonged contact with the skin
  - ▶ Post assemblies shall not exceed 0.2  $\mu\text{g}/\text{cm}^2/\text{week}$
  - ▶ All other metal components shall not exceed 0.5  $\mu\text{g}/\text{cm}^2/\text{week}$
  - ▶ Only applicable if the product is marketed to adults sensitive to nickel
  - ▶ Perform full test when the nickel spot test is positive or inconclusive
  - ▶ Materials exempt from testing:
    - ▶ Precious metals: gold; sterling silver (at least 925/1000); platinum; palladium; rhodium; osmium; iridium; ruthenium; titanium; and stainless or surgical steel grades 304, 316 and 430
- ▶ Hazardous substances in liquid components (liquid filled components)
  - Shall contain not contain 10% or more by weight of ethylene glycol, diethylene glycol, petroleum distillates, turpentine, toluene, or xylene; 4% or more by weight of methanol; or 5% or more by weight of benzene





# Performance - Jewelry

# Physical Characteristics

- Dimensional evaluations are performed to validate label claims and consistency



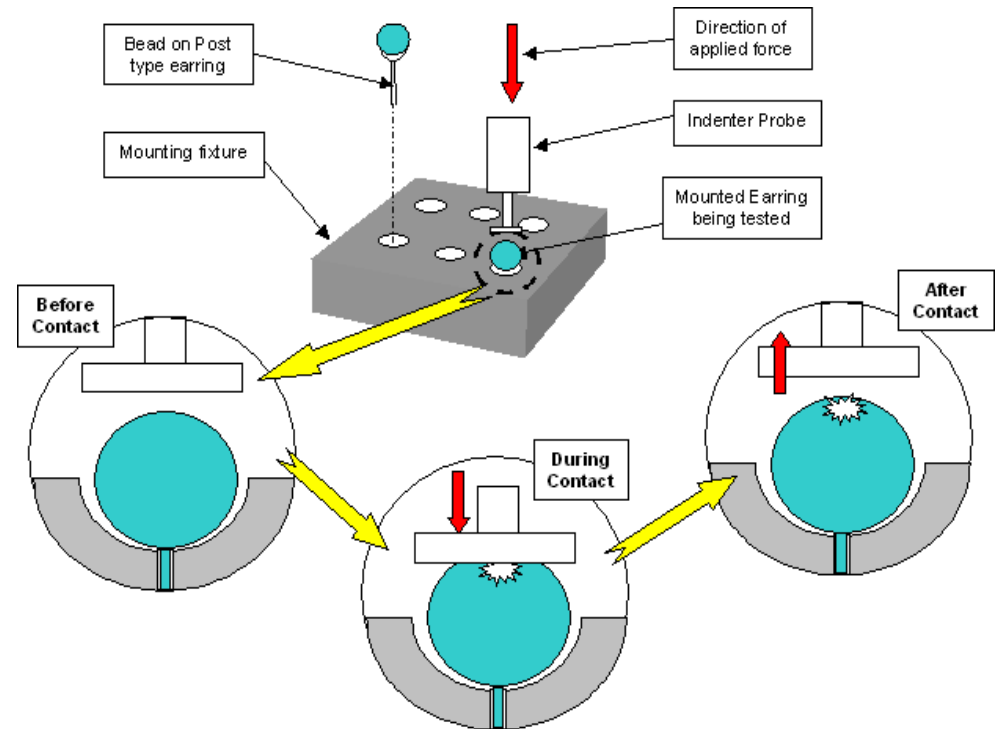
# Construction and Workmanship

- ▶ Sharp Points and Edges
- ▶ Defects
- ▶ Workmanship
- ▶ Type of Finish



## Test Equipment and Fixtures

- ▶ BV has also developed equipment and fixtures that will be used during jewelry testing.
- ▶ Many of these fixtures and equipment are universal, which provides consistency between labs



# Performance - Resistance to Corrosion

Evaluation	Citation / Method	No. Samples	Criteria	Results	Rating
Resistance to Corrosion - metal components	ASTM B117-07 modified / CPSD-HL-01010-MTHD	1	Withstand 24 hours in 1% salt spray (Fog) with no major corrosion or visual change. Modification = 1% salt (Fog) spray.		

- This procedure simulates a test sample exposed to the environment during normal use or storage.



**Salt Spray Chamber per ASTM B117**

# Performance - Tarnish Testing

Evaluation	Citation/Method	No. Samples	Criteria	Results	Rating
*Tarnish test - silver and gold jewelry only - by request only	CPSD-HL-02023-MTHD / Tarnish	1	Presentation boxes and other packaging materials shall not cause tarnishing when placed at 45°C and 75% humidity for 7 days.		

- ▶ The scope of this test method is to identify the presence or absence of materials in jewelry packaging that will tarnish or stain silver or gold jewelry that will come in contact with the packaging.
- ▶ Test method based on ASTM F2043





# Performance - Tension and Compression Testing

- ▶ Tension is applied until the sample breaks.
- ▶ Simulates jewelry being pulled or tugged during normal use.
- ▶ During compression testing a load is applied to the sample until structural damage occurs.



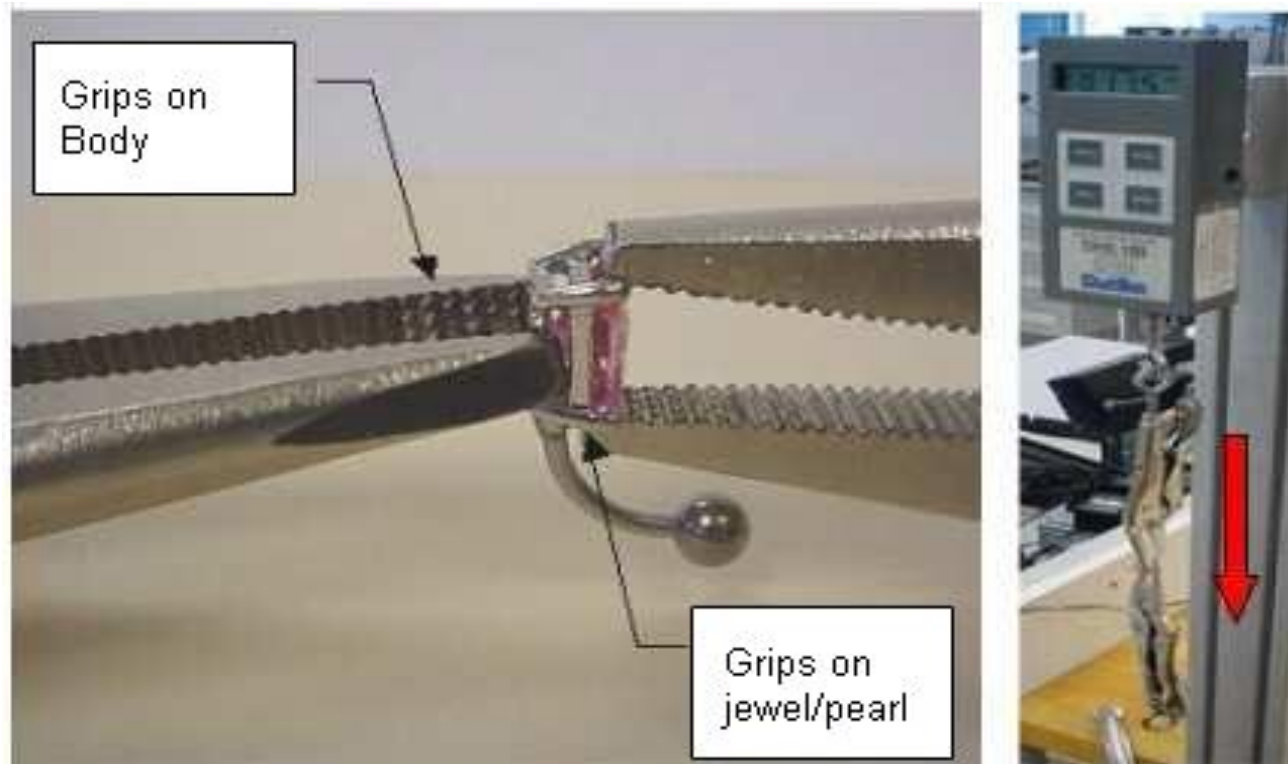
# Performance - Clasp Durability

After 250 cycles of opening and closing, the clasp is tested for durability. Upon completion, the clasp is tested with a force gauge to determine the actuation force to open the clasp.



# Performance - Setting Strength

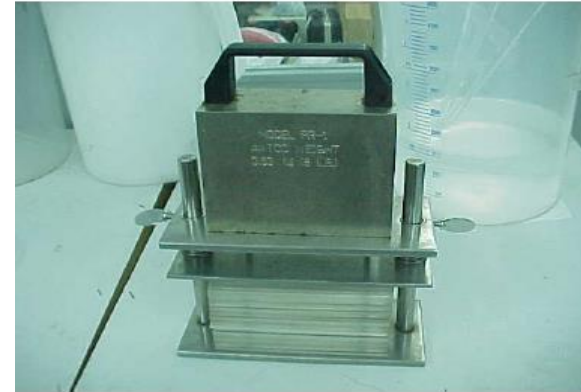
- ▶ This test is to evaluate the force required to pull apart a jewel or pearl from the setting of the jewelry.



- ▶ Shall meet a minimum of 3 pounds to remove

# Performance - Colorfastness to Perspiration

- ▶ AATCC 15 (American Association of Textile Color and Chemicals)
- ▶ Colorfastness to Perspiration simulates textile jewelry color transferring after ones body has perspired onto it.



**Horizontal Perspiration  
Tester**



**Fabric Strips**

# *Thank You for Attending!*



## Questions?

Email us at [cps.info@us.bureauveritas.com](mailto:cps.info@us.bureauveritas.com)

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