

Transcript of 2020 CPSC Podcast Series, “OVERVIEW OF U.S. APPAREL REQUIREMENTS”

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Hi, my name is Sylvia Chen, and I want to welcome you to this podcast presentation today.

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As CPSC’s Director of International Programs, Richard O’Brien stated: “design of safe products at the outset is critical.” CPSC is a United States federal government agency charged with protecting the public from unreasonable risks of injury or death associated with the use of consumer products under the agency’s jurisdiction. We have developed this podcast series not only to inform about regulations, standards, and other safety requirements, but also to emphasize the importance of designing products with safety considerations in mind, and to offer best practices for enhancing the safety of a variety of common consumer products.

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The series covers seven common consumer products and the requirements for keeping consumers safe, focusing on products affecting millions of consumers, such as electronics, apparel, bicycles, mattresses, infant and toddler products, carriages and strollers, and toys. In this podcast series, you can expect to learn about the key hazards and risks of the product, important design and manufacturing considerations, regulations and standards that CPSC uses to ensure product safety, best practices you can employ, and what resources are available to assist you in understanding and implementing the requirements.

The podcasts include English and Chinese slide decks and Chinese narration to make this important safety information as accessible as possible. Additionally, CPSC has established a dedicated email box, where listeners, at their convenience, can send in any questions, in English or Chinese. Our staff will monitor the email box and respond to your questions. Transcripts in English are available on this site.

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The slides used in this podcast are not a comprehensive statement of legal requirements or policy, and thus, should not be relied upon for that purpose. You should consult official versions of U.S. statutes and regulations, as well as published CPSC guidance, when making decisions that could affect the safety and compliance of products entering U.S. commerce. Note that references are provided at the end of the presentation.

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And now, I would like to introduce the presenter, Weiying Tao, Textile Technologist from CPSC’s National Product Testing and Evaluation Center. Her presentation covers U.S. apparel

Requirements, including the Flammable Fabrics Act, certification requirements, chemical content, tracking labels, and small parts.

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This presentation will:

- (1) Highlight the statutory authority for regulating textile flammability in the United States, the Flammable Fabrics Act;
- (2) Provide an overview of CPSC apparel requirements for flammability performance and the use of drawstrings;
- (3) Review other relevant CPSC requirements, such as product certification, chemical content limitations, tracking labels, and small parts; and
- (4) Summarize the requirements by specific product classes.
- (5) Finally, we will provide resources that can help you understand better the CPSC requirements, testing, and other requirements that your products may be required to meet if they will be sold to U.S. consumers.

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The Flammable Fabric Act, or FFA, is the primary legal authority for CPSC's regulation of textile flammability. Enacted in 1953, this Act is decades older than the CPSC, but has been enforced by the CPSC since the establishment of the agency in the 1970s.

There are eight regulations under the FFA that cover various types of apparel or household textile goods.

Today, I will discuss two of these regulations: 16 CFR parts 1610 and 1611, which cover most consumer apparel goods, with some exceptions.

There are two children's sleepwear regulations, two carpet and rug regulations, and two mattress regulations.

CPSC will provide another podcast on mattress requirements later in this series.

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First, we will cover specific CPSC apparel requirements.

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As mentioned, the clothing textiles regulation, 16 CFR part 1610, applies to almost all apparel sold in the United States for adults and children.

However, there are some apparel items that are exceptions to the standard, meaning that they do not need to meet the flammability requirements in 1610. For some of these exceptions,

there is not a flammability requirement. Examples are certain hats, gloves, footwear, and interlining fabrics. The details of these exceptions can be found in section 1610.1(c) of the regulation.

Most children's sleepwear is regulated under more stringent standards, 16 CFR parts 1615 and 1616. However, if the children's sleepwear is not subject to those regulations, it must meet 1610. Examples are children's sleepwear that meet the tight-fitting requirements, or sleepwear for infants that is not subject to those standards.

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Part 1610 is a component part test, meaning that testing is intended to be performed on the fabric before production, and not at the finished garment stage. In most cases, fabric intended for use in U.S. apparel will be tested by the suppliers, and those results will be provided to the garment manufacturer.

There are some exemptions to the testing requirements. This means that certain fabrics used for apparel subject to part 1610 still must meet the flammability performance requirements. However, decades of testing data have shown that these exempted fabrics so rarely fail the requirements that the Commission has determined that they do not require testing.

As a practical matter, even though testing is not required, manufacturers may want to perform some testing, or confirm the testing results from a supplier.

Additionally, there is no required test to confirm the fabric weight or fiber composition; so manufacturers should perform some tests to confirm these characteristics before proceeding to use a fabric based solely on a supplier's declaration. Manufacturers should especially consider testing when entering a new supplier relationship, or when working with fabrics outside of those typically used in their manufacturing.

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Although the test itself is very straightforward, part 1610 testing requires a trained technician who is familiar with the specific stages and classifications that are part of the test protocol.

Before testing begins, the technician should examine the product specification and fabric to determine whether the final product is subject to the rule (meaning must it meet the requirements of 1610), and if so, does the fabric meet one of the testing exemptions (meaning it must meet the requirements, but does not have to be tested). This step could also be performed by a knowledgeable member of the manufacturer's staff, a consultant, or a testing laboratory.

If the fabric requires testing, specimens are prepared according to the standard, to determine the quickest burning direction of the fabric, which will be used for further testing.

Specimens will then be prepared, conditioned, and tested in their original state to determine a preliminary classification. If the fabric test results in a class 3 preliminary classification, it is considered dangerously flammable. Testing is stopped, and the classification is reported.

For tests that result in Class 1 (or Class 2 for raised surface fabrics), the fabrics are refurbished after a standard laundering and dry cleaning process, and then retested for a final classification.

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The test is conducted in a standard test chamber with the conditioned specimen mounted in the specimen holder that is placed at a 45-degree angle. The flame impinges on the bottom edge of the specimen for 1 second, and the flame spread time, determined by the breaking of a stop cord mounted above the specimen as the flame propagates up the specimen, is recorded. Classification is determined based on the results of multiple specimens (5 or 10 specimens, depending on the results of the first 5 specimens).

In this picture, you can see the technician placing the specimen in the test chamber. The ignition flame is in the lower left corner of the picture.

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Clothing textiles tested according to 1610 are given one of three classifications:

- Class 1 fabrics are considered to burn normally and can be used in clothing.
- Class 2 fabrics should only be used with caution.
- Class 3 fabrics are considered dangerously flammable and may not be used in apparel.

For plain surface fabrics, such as denim or chambray, fabrics will be classified as either Class 1 or Class 3. In addition to Class 1 or Class 3, raised fiber surface fabrics, such as velvet or fleece, can be classified as Class 2, which is considered to be intermediate flammability performance.

When choosing a safe fabric, manufacturers should look not only at the final classification, but also at how repeatable the test results were across specimens. More consistent results are preferable to results with extreme outliers, even if the average burn times are the same. More consistent results indicate more consistent flammability performance and a safer consumer product.

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In addition to recording the flame spread time, the technician observes the burning behavior of each specimen and records a test result code that describes how the specimen burns. On this slide, the test result codes for raised fiber surface fabrics are listed, along with a description of what each code means. This table can be found in our part 1610 laboratory manual. As you can see, the technician must be well-versed in the nuances of the specimen's burning behavior to

properly apply the codes. Along with the recorded times, these codes are used to determine the classification of the fabric.

There is a burning phenomenon associated with raised fiber surface fabrics called *surface flash*. Surface flash occurs when the flame front moves quickly up the tips of the raised fibers of a specimen, but does not ignite the base fabric. Although a surface flash occurrence can be alarming to a consumer, this burning behavior is not determined to be dangerous, as long as the base fabric is not ignited. Surface flash incidents tend to last no longer than 1 or 2 seconds and may have the energy to break the stop cord, resulting in a very short recorded time. These codes account for the relatively innocuous surface flash phenomenon that might result in otherwise failing test results, allowing the technician to differentiate between that and dangerous burning behavior that may result from very fast burning base burns and ignitions of the base fabric that propagate other than where the flame ignites the fabric.

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Even though this requirement has been in existence for decades, CPSC staff still see failures in the U.S. marketplace to meet the requirement.

In addition to fabrics with test results that have high variability, manufacturers should take extra caution when using lightweight, sheer rayon or silk fabrics and raised fiber surface cellulosic fiber fabrics, such as cotton and rayon, or blends containing these fiber types.

In the case of the lightweight, sheer fabrics, these products have very little material, and the flame can propagate quickly, burning faster than paper. An example of a product that we have seen do this is sheer silk or rayon scarves.

For potentially noncompliant raised fiber surface fabrics, staff has seen examples of heavier weight cotton- or rayon-rich fabrics. Cellulosic fibers burn readily, and the addition of extra surface area in the form of a raised fiber surface can result in dangerous burning behavior. With these fabrics, staff has observed surface flash that ignites the base fabric at points other than the point of ignition for the test, which is determined to be dangerous burning behavior. Additionally, staff has found that these fabrics tend to have more variability in test results. Some example fabrics are fleece, terry, and fabrics made with chenille yarns.

Although not all of the fabrics that fit these descriptions will be noncompliant, staff encourages manufacturers to take extra measures to ensure compliance, such as undertaking extra testing or making design changes, such including less flammable fiber types in blends.

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Here we see an example recall of a lightweight, sheer scarf. You can see from the picture that the fabric is quite sheer. Again, not all lightweight sheer scarves will be noncompliant, but

manufacturers should take extra caution when producing these types of products for the U.S. market.

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In addition to the testing requirements for 1610, there are recordkeeping requirements that must be met. Manufacturers should maintain test results, including the classification that was determined for the fabric. Additionally, a fabric swatch, along with any characteristics of the fabric, such as the fibers used in the fabric, any finishes applied to the fabric, and any other relevant information that might impact the fabric's flammability performance or identify the fabric.

More information on recordkeeping requirements can be found at section 1610.38 of the standard.

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There is an alternate flammability standard for certain apparel fabrics subject to the FFA when 1610 is not an appropriate standard to characterize flammability performance. The regulation at 16 CFR part 1611, the Standard for the Flammability of Vinyl Plastic Film, applies to non-rigid, unsupported vinyl plastic film fabrics, including transparent, translucent, and opaque material used in apparel. Examples of products that may use these fabrics are disposable diapers, raincoats, and some holiday costumes.

Similar to 1610, the standard specifies a test method that determines the average burn time, which may not exceed 1.2 inches per second. The test method in part 1611 uses a different test apparatus and conditioning requirement, among other differences from 1610. However, part 1611 does have the same recordkeeping requirements as 1610.

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Another apparel requirement specific to children's clothing concerns drawstrings. ASTM F1816 defines a "drawstring" as "a non-retractable cord, ribbon, or tape of any material to pull together parts of upper outerwear to provide for closure." Young children can experience injury or death due to drawstring entanglements. In 1996, CPSC issued guidelines that were adopted by ASTM, resulting in the ASTM standard F1816-97. On May 19, 2006, CPSC issued a letter to manufacturers, retailers, and importers of children's upper outerwear garments, urging them to make certain that the garments they produce do not have hood drawstrings, which can pose a strangulation hazard to children and that comply with ASTM F-1816.

On August 14, 2008, the Consumer Product Safety Improvement Act of 2008 (CPSIA) amended section 15 of the CPSA by adding a new section 15(j) of the CPSA, which gives the Commission the authority to specify, by rule, for any consumer product or class of consumer products, characteristics whose existence or absence shall be deemed "a substantial product hazard" if the Commission determines that:

- The characteristics are readily observable and have been addressed by voluntary standards,
- Such standards have been effective at reducing the risk of injury, and
- Industry is in substantial compliance with such standards.

In 2011, the Commission determined that drawstrings on children's upper outerwear constitute a substantial product hazard. Based on that determination, the Commission issued a rule for drawstrings under 15(j) of the CPSA.

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This rule does not apply to all drawstrings, just those located at the neck or waist of children's upper outerwear. Upper outerwear are apparel products generally intended to be worn over other clothing as an exterior garment, such as jackets, ski vests, or sweatshirts. For purposes of this rule, ties are also included in the definition of a "drawstring."

This rule does not apply to apparel that is not considered upper outerwear, such as underwear, inner clothing layers, pants, shorts, swimwear, dresses, and skirts. Belts are also not considered drawstrings.

If you have questions about drawstrings, reach out to the CPSC Office of Compliance and Field Operations.

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The drawstring restrictions that apply to children's upper outerwear depend on the location of the drawstring and the size of the garment.

For sizes 2T through 12, drawstrings are not allowed to be present on the garment on a hood or in the area of the neck. CPSC staff encourages manufacturers to look for suitable design alternatives, such as snaps, buttons, Velcro, or elastic closures.

Drawstrings located at the waist or bottom edge of the garment are allowed, but there are some requirements that must be met. These drawstrings must not extend more than 3 inches from the drawstring channel when the garment is expanded to its fullest width. Continuous drawstrings must be secured in the channel so that they cannot be pulled from the garment. Any attachment on the end of a drawstring, such as a cord lock, knot, or toggle, is prohibited, even if the drawstring is fully retractable. These requirements apply to children's upper outerwear sizes 2T through 16.

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CPSC enforces the requirements for drawstrings, and sometimes, recalls noncompliant products. This is an example of a drawstring recall. This children's upper outerwear garment has a "faux half belt," meaning that the design element is not a belt, but rather, a drawstring for purposes of the requirement, because it could present an entanglement hazard.

In this example, the drawstring extends more than 3 inches from the attachment point on the garment.

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Beyond the specific requirements for apparel that we have discussed, there are general requirements under other CPSC statutes that must be met.

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Consumer products subject to a consumer product safety rule, standard, or ban are required to be certified by the manufacturer or U.S. importer.

For general use products, those not intended specifically for children 12 years of age or younger, manufacturers or U.S. importers must issue a General Certificate of Conformity, or GCC. A GCC is based on a test of each product or a reasonable testing program and must include all requirements to which a product is subject. The testing does not need to be performed by a CPSC-accepted third party laboratory. Adult apparel requires the issuance of a GCC, unless it meets one of the testing exemptions under 1610.

Children's Product Certificates, or CPCs, must be issued for children's apparel intended for ages 12 and under. The CPSC relies on testing performed by a CPSC-accepted third party laboratory for all of the requirements to which the apparel is subject.

While manufacturers outside of the United States cannot certify their products under the CPSA, they can have the testing performed, and provide the results to the U.S. importer. The U.S. importer may rely on this testing to issue a certificate, as long as all requirements are met, and due care is exercised, meaning the degree of care that a prudent and competent person engaged in the same line of business or endeavor would exercise under similar circumstances. Due care does not permit willful ignorance.

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There are chemical content requirements that must be met for children's apparel. The Federal Hazardous Substances Act (FHSA) requires that the lead content in children's products not exceed 100 parts per million. This requirement applies to metal components used in children's apparel and sleepwear, such as zippers and buttons.

Under the Consumer Product Safety Act (CPSA), lead concentrations in paint and other surface coatings may not exceed 90 parts per million. Screen-prints are one example of potential lead in paint or surface coatings for children's apparel.

Under the CPSA, certain phthalate concentrations may not exceed 0.1% in children's toys and childcare articles. A "childcare article" is defined as a product used to facilitate sleeping and feeding for children 3 years or younger.

In 2017, the Commission issued a final phthalates rule (16 CFR part 1307) with an effective date of April 25, 2018. Any children's toy or child care article that contains concentrations of more than 0.1 percent of the following phthalates is prohibited:

- di-(2-ethylhexyl) phthalate (DEHP),
- dibutyl phthalate (DBP),
- benzyl butyl phthalate (BBP),
- diisononyl phthalate (DINP),
- diisobutyl phthalate (DIBP),
- di-n-pentyl phthalate (DPENP),
- di-n-hexyl phthalate (DHEXP), and
- dicyclohexyl phthalate (DCHP).

Example products are the feet on tight-fitting "footie" pajamas.

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To help relieve third party testing burdens, the Commission has made determinations that certain materials do not have to be tested for certification purposes because they will not contain certain chemicals at noncompliant concentrations. Lead determinations for certain textile fibers can be found at section 1500.91. Phthalate determinations for certain plastics can be found at section 1308.2.

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CPSC enforces the chemical content requirements for children's products. A relevant recall involved a children's garment with a decorative metal jewelry piece with a lead content concentration exceeding the limits set forth under the FHSA.

We encourage manufacturers to check the chemical content of metal components on children's apparel (or any other children's product subject to these requirements), especially when there is a design or supply change that could impact the compliance of the product.

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Children's products that are designed or intended primarily for use by children ages 12 or younger must have distinguishing permanent marks, generally referred to as "tracking labels."

These labels must be:

- Affixed to the product and its packaging;
- Be visible and legible; and
- Provide certain identifying information.

Tracking labels must contain certain basic information, including:

1. The name of the manufacturer or private labeler;
2. The location and date of production of the product;
3. Detailed information on the manufacturing process, such as a batch or run number, or other identifying characteristics; and
4. Any other information to facilitate ascertaining the specific source of the product.

All tracking label information should be visible and legible.

Compliance with the tracking label requirement will help improve the effectiveness and response rates for any future recalls. Compliance with this requirement also helps CPSC staff and companies in the chain of commerce. When a component has been identified as the source of a hazard or violation, the tracking label helps identify other products that may contain the same component.

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For products intended primarily for children under 3 years of age, there is a requirement related to small component parts that is intended to prevent choking deaths and injuries in children. A small part is any object that fits completely into a specially designed test cylinder 2.25 inches long with a diameter of 1.25 inches wide, which approximates the size of the fully expanded throat of a child under 3 years old.

If a small part fits completely into the cylinder, and the product from which it came is intended for use by children under 3, the product is banned because the small part presents a choking hazard. See 16 CFR § 1501.4 for more information.

It should be noted that fabrics and buttons are exempted from this requirement. However, manufacturers should be sure that buttons are well attached to these garments because those that are not securely attached could result in a determination of a substantial product hazard and potentially result in a recall.

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Here is a recall of an infant garment recalled for a small parts violation. The snaps on this garment detached and posed a choking hazard to children.

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How do you put all this information together for your product? I will now summarize the apparel requirements by product type.

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Adult apparel is apparel intended for those other than 12 years or younger.

These products must meet the Clothing textile standard, 16 CFR part 1610, or if more appropriate, the vinyl plastic film standard, 16 CFR part 1611. The results of these tests would be used as the basis for issuing a GCC.

In 2016, the Commission adopted an enforcement policy stating that adult apparel subject to 1610, but exempted from testing due to fabric weight or fiber content, does not require a GCC to be issued. Therefore, only apparel that does not meet a testing exemption under the regulation must be accompanied with a certificate.

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Children's apparel has more requirements than adult apparel, and the requirements depend on the components and design. All children's apparel must meet the clothing textile standard, 16 CFR part 1610, unless the Vinyl Plastic Film standard, 16 CFR part 1611, is more appropriate, or if the product is children's sleepwear that must meet the Children's Sleepwear standard, 16 CFR parts 1615 or 1616. Even if the fabric is exempted from testing, a certificate still must be issued.

If metal components, such as zippers, buttons, or decorative elements, are used on the garment, they may require testing for lead content.

If the garment has a screen print or painted components, the garment may require testing for lead in paint or surface coatings.

For apparel that is considered a childcare article containing any accessible plasticized component parts, such as a bib or the feet of pajamas, , it will need to meet phthalate requirements.

For any of these tests that are required, the domestic manufacturer or importer will need to have testing performed by a CPSC-accepted, third party laboratory, and then issue a certificate based on that testing.

Additionally, children's apparel requires a tracking label that meets all of the requirements outlined.

Finally, the apparel must meet any drawstring requirements, but no certification is required.

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Thank you, and we hope you enjoyed this podcast. If you have any questions on the presentation, please do not hesitate to submit your questions in English or Chinese to the mailbox mentioned earlier: CPSCinChina@cpsc.gov. This mailbox is routinely monitored.

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We also wish to remind viewers that CPSC has many technical documents and resources available in Chinese. At the conclusion of this presentation, we provide many links to resources viewers may find useful.

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We encourage viewers to be sure to check out CPSC's Regulatory Robot, available in English, Chinese, and several other languages. The Regulatory Robot is an automated tool that can help identify safety requirements for many different types of products. Many companies have found this tool to be extremely helpful.

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Please also see the following slides to view a variety of apparel specific resources.

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Thank you for downloading this presentation.