



UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
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BETHESDA, MD 20814

This document has been electronically
approved and signed.

DATE: June 6, 2018

BALLOT VOTE SHEET

TO: The Commission
Alberta E. Mills, Secretary

THROUGH: Patricia M. Hanz, General Counsel
Patricia H. Adkins, Executive Director

FROM: Patricia M. Pollitzer, Assistant General Counsel
Hyun S. Kim, Attorney, OGC

SUBJECT: Draft Final Rule: *Children's Products, Children's Toys, and Child Care Articles: Determinations Regarding Lead, ASTM F963 Elements, and Phthalates for Engineered Wood Products*

BALLOT VOTE DUE: Tuesday, June 12, 2018

Staff is forwarding to the Commission a memorandum recommending that the Commission issue a final rule determining that certain untreated and unfinished engineered wood products (EWPs), specifically, particleboard, hardwood plywood, and medium-density fiberboard, made from virgin wood or pre-consumer waste wood does not contain lead, the ASTM F963 elements, or specified phthalates, at concentrations that exceed the required limits under the CPSC's statutes for children's products, children's toys, and child care articles. Based on these determinations, the specified EWPs would not require third party testing for compliance with these requirements. The Office of the General Counsel is providing for the Commission's consideration the attached draft final rule for publication in the *Federal Register*.

Please indicate your vote on the following options:

- I. Approve publication of the attached final rule in the *Federal Register*, as drafted.

(Signature)

(Date)

II. Approve publication of the attached final rule in the *Federal Register*, with the changes specified below.

(Signature)

(Date)

III. Do not approve publication of the attached final rule in the *Federal Register*.

(Signature)

(Date)

IV. Take other action as specified below:

(Signature)

(Date)

Attachment: Draft *Federal Register* Notice; Final Rule: Children's Products, Children's Toys, and Child Care Articles: Determinations Regarding Lead, ASTM F963 Elements, and Phthalates for Engineered Wood Products

[Billing Code 6355-01-P]

CONSUMER PRODUCT SAFETY COMMISSION

16 CFR Part 1252

[Docket No. CPSC-2017-0038]

**Children's Products, Children's Toys, and Child Care Articles: Determinations
Regarding Lead, ASTM F963 Elements, and Phthalates for Engineered Wood
Products**

AGENCY: U.S. Consumer Product Safety Commission.

ACTION: Final rule.

SUMMARY: The Consumer Product Safety Commission (CPSC) is issuing a final rule determining that certain untreated and unfinished engineered wood products (EWPs), specifically, particleboard, hardwood plywood, and medium-density fiberboard, made from virgin wood or pre-consumer wood waste do not contain lead, the ASTM F963 elements, or specified phthalates that exceed the limits set forth under the CPSC's statutes for children's products, children's toys, and child care articles. Based on these determinations, the specified EWPs would not be required to have third party testing for compliance with the requirements for lead, ASTM F963 elements, or phthalates for children's products, children's toys, and child care articles.

DATES: The rule is effective on [**insert date 30 days after publication in the FEDERAL REGISTER**].

FOR FURTHER INFORMATION CONTACT: Stephen Lee, Office of Compliance,
U.S. Consumer Product Safety Commission, 4330 East West Hwy, Bethesda, MD 20814;
301-504-7844; email: slee@cpsc.gov.

SUPPLEMENTARY INFORMATION:

A. Background

1. Third Party Testing and Burden Reduction

Section 14(a) of the Consumer Product Safety Act (CPSA), as amended by the Consumer Product Safety Improvement Act of 2008 (CPSIA), requires that manufacturers of products subject to a consumer product safety rule or similar rule, ban, standard, or regulation enforced by the CPSC, must certify that the product complies with all applicable CPSC-enforced requirements. 15 U.S.C. 2063(a). For children’s products, children’s toys, and child care articles, certification must be based on testing conducted by a CPSC-accepted third party conformity assessment body (laboratory). *Id.* Public Law No. 112-28 (August 12, 2011) directed the CPSC to seek comment on “opportunities to reduce the cost of third party testing requirements consistent with assuring compliance with any applicable consumer product safety rule, ban, standard, or regulation.” Public Law No. 112-28 also authorized the Commission to issue new or revised third party testing regulations if the Commission determines “that such regulations will reduce third party testing costs consistent with assuring compliance with the applicable consumer product safety rules, bans, standards, and regulations.” *Id.* 2063(d)(3)(B).

2. CPSC's Lead Standard

Section 101 of the CPSIA has two requirements associated with lead in children's products. 15 U.S.C. 1278a. First, no accessible part of a children's product may contain more than 100 parts per million (ppm) lead content. Second, paint or other surface coatings on children's products and furniture intended for consumer use may not contain lead in concentrations greater than 90 ppm. Manufacturers of children's products must certify, based on third party testing, that their products comply with all relevant children's product safety rules. Thus, products subject to the lead content or paint/surface coating limits require passing test results from a CPSC-accepted third party laboratory for the manufacturer to issue a children's product certificate (CPC), before the products can be entered into commerce.

To alleviate some of the third party testing burdens associated with lead in the accessible component parts of children's products, the Commission determined that certain materials, including gemstones, precious metals, wood, paper, CMYK process printing inks, textiles, and specified stainless steel, do not exceed the 100 ppm lead content limit under section 101 of the CPSIA. Based on this determination, these materials do not require third party testing for the lead content limits. The determinations regarding lead content for certain materials are set forth in 16 CFR 1500.91.

3. ASTM F963 Elements

Section 106 of the CPSIA provides that the provisions of ASTM International *Consumer Safety Specifications for Toy Safety* (ASTM F963) shall be considered to be

consumer product safety standards issued by the Commission.¹ 15 U.S.C. 2056b. The Commission has issued a rule that incorporates by reference the relevant provisions of ASTM F963.² 16 CFR part 1250. Thus, children’s toys subject to ASTM F963 must be tested by a CPSC-accepted third party laboratory and demonstrate compliance with all applicable CPSC requirements for the manufacturer to issue a CPC before the children’s toys can be entered into commerce.³

Section 4.3.5 of ASTM F963 requires that surface coating materials and accessible substrates of children’s toys that can be sucked, mouthed, or ingested⁴ must comply with the solubility limits of eight elements listed in Table 1 of the toy standard. The materials and their solubility limits are shown in Table 1. We refer to these eight elements as “ASTM F963 elements.”

¹ ASTM F963 is a consumer product safety standard, except for section 4.2 and Annex 4, or any provision that restates or incorporates an existing mandatory standard or ban promulgated by the Commission or by statute.

² The current version of ASTM F963 is ASTM F963-17. The test method for the ASTM F963 elements allows the use of High-Definition X-Ray Fluorescence Spectroscopy (HDXRF) for total element screening. See section 8.3.1.4 of ASTM F963-17.

³ A “children’s toy” is defined in section 1.3 of ASTM F963-17 as any object designed, manufactured, or marketed as a plaything for children under 14 years of age. However, the term “children’s toy” is defined in section 108(e)(1)(B) of the CPSIA as a consumer product designed or intended by the manufacturer for a child 12 years of age or younger for use by the child when the child plays. Only toys intended for a child 12 years of age or younger are subject to certification requirements.

⁴ ASTM F963 contains the following note regarding the scope of the solubility requirement: NOTE 4—For the purposes of this requirement, the following criteria are considered reasonably appropriate for the classification of children’s toys or parts likely to be sucked, mouthed or ingested: (1) All toy parts intended to be mouthed or contact food or drink, components of children’s toys which are cosmetics, and components of writing instruments categorized as children’s toys; (2) Children’s toys intended for children less than 6 years of age, that is, all accessible parts and components where there is a probability that those parts and components may come into contact with the mouth.

Table 1: Maximum Soluble Migrated Element in ppm (mg/kg) for Surface Coatings and Substrates Included as Part of a Toy	
Elements	Solubility Limit, (ppm) ⁵
Antimony (Sb)	60
Arsenic (As)	25
Barium (Ba)	1000
Cadmium (Cd)	75
Chromium (Cr)	60
Lead (Pb)	90
Mercury (Hg)	60
Selenium (Se)	500

The third party testing burden could be reduced only if all elements listed in section 4.3.5 have concentrations below their solubility limits. Because third party laboratories typically run one test for all of the ASTM F963 elements, no testing burden reduction would be achieved if any one of the elements requires testing.

To alleviate some of the third party testing burdens associated with the ASTM F963 elements in the accessible component parts of children's toys, the Commission determined that certain unfinished and untreated trunk wood does not contain ASTM F963 elements that would exceed the limits specified in section 106 of the CPSIA. Based on this determination, unfinished and untreated trunk wood would not require third party

⁵ The method to assess the solubility of a listed element is detailed in section 8.3.2, *Method to Dissolve Soluble Matter for Surface Coatings*, of ASTM F963. Modeling clays included as part of a toy have different solubility limits for several of the elements.

testing for the ASTM F963 elements. The determinations regarding the ASTM F963 elements limits for certain materials is set forth in 16 CFR 1251.2.

4. *Phthalates*

Section 108(a) of the CPSIA permanently prohibits the manufacture for sale, offer for sale, distribution in commerce, or importation into the United States of any “children’s toy or child care article” that contains concentrations of more than 0.1 percent of di-(2-ethylhexyl) phthalate (DEHP), dibutyl phthalate (DBP), or butyl benzyl phthalate (BBP). 15 U.S.C. 2057c(a). The CPSIA required the Commission to appoint a Chronic Hazard Advisory Panel (CHAP) to “study the effects on children’s health of all phthalates and phthalate alternatives as used in children’s toys and child care articles.” 15 U.S.C. 2057c(b)(2). The CHAP issued its report in July 2014.⁶ On October 27, 2017, the Commission published a final rule in the *Federal Register*, “Prohibition of Children’s Toys and Child Care Articles Containing Specified Phthalates,” 82 FR 49938, prohibiting children’s toys and child care articles containing concentrations greater than 0.1 percent of:

- di-(2-ethylhexyl) phthalate (DEHP);
- dibutyl phthalate (DBP);
- benzyl butyl phthalate (BBP);
- diisononyl phthalate (DINP);
- diisobutyl phthalate (DIBP);
- di-*n*-pentyl phthalate (DPENP);

⁶ <http://www.cpsc.gov/PageFiles/169902/CHAP-REPORT-With-Appendices.pdf>.

- di-*n*-hexyl phthalate (DHEXP); or
- dicyclohexyl phthalate (DCHP).

These restrictions apply to any plasticized component part of a children's toy or child care article or any other component part of a children's toy or child care article that is made of other materials that may contain phthalates. The phthalates prohibitions are set forth in 16 CFR part 1307.

Tests for phthalate concentration are among the most expensive certification tests to conduct on a product, and each accessible component part subject to section 108 of the CPSIA must be tested.⁷ Third party testing burden reductions can occur only if each phthalate's concentration is below 0.1 percent (1000 ppm). Because laboratories typically run one test for all of the specified phthalates, no testing burden reduction likely is achieved if any one of the phthalates requires compliance testing.

To alleviate some of the third party testing burdens associated with plastics in the accessible component parts of children's toys and child care articles, the Commission determined that products made with general purpose polystyrene (GPPS), medium-impact polystyrene (MIPS), high-impact polystyrene (HIPS), and super high-impact polystyrene (SHIPS) with specified additives do not exceed the phthalates content limits under section 108 of the CPSIA. 82 FR 41163 (August 30, 2017). Based on this determination, materials used in children's toys and child care articles that use these specified plastics and additives would not require third party testing for the phthalates

⁷ Test costs for the content of all the specified phthalates have been reported to range from \$125 to \$350 per component, depending upon where the tests are conducted and any discounts that might apply.

content limits. The plastics determinations are set forth in the Commission's regulations at 16 CFR part 1308.

5. Notice of Proposed Rulemaking

On October 13, 2017, the Commission published a notice of proposed rulemaking (NPR) in the *Federal Register* for the engineered wood determinations. (80 FR 47645). The Commission proposed determinations that untreated and unfinished EWPs (particleboard, hardwood plywood, and medium-density fiberboard) made from virgin wood or pre-consumer wood waste, do not contain lead, or any of the specified elements in ASTM F963 in concentrations greater than their specified solubility limits. In addition, with the exception of hardwood plywood that contains PVAc adhesive formulations, the Commission proposed a determination that these specified EWPs do not contain any of the specified phthalates in concentrations greater than 0.1 percent. The comments to the NPR are addressed in section C of this preamble.

B. Contractor's Research

1. Overview

CPSC contracted with the Toxicology Excellence for Risk Assessment (TERA),⁸ who authored literature review reports on the content issues related to certain natural materials, plastics, and EWPs. The following reports produced by TERA formed the basis for the proposed EWP determinations: Task 9, *Concentrations of Selected Elements in Unfinished Wood and Other Natural Materials*; Task 11, *Exposure Assessment*:

⁸ After conducting the contract reports for the CPSC, TERA reorganized as the Risk Science Center at the University of Cincinnati: <https://med.uc.edu/eh/centers/rsc>.

Composition, Production, and Use of Phthalates; and Task 14, *Final Report for CPSC Task 14*, which summarized the available information on the production of the EWPs.

1. *TERA Task 9 Report*

In the Task 9 Report, TERA conducted a literature search on whether unfinished wood and other natural materials could be determined not to contain any of the ASTM F963 elements in concentrations greater than the ASTM F963 solubility limits.⁹ The materials researched included unfinished woods (ash, beech, birch, cherry, maple, oak, pine, poplar, and walnut); bamboo; beeswax; undyed and unfinished fibers and textiles (cotton, wool, linen, and silk); and uncoated or coated paper (wood or other cellulosic fiber).

To assess the presence of the ASTM F963 elements' concentrations in the materials, TERA looked at several factors. The factors reviewed included the presence and concentrations of the elements in the environmental media (*e.g.*, soil, water, air), and in the base materials for the textiles and paper; whether processing has the potential to introduce any of the ASTM F963 elements into the material under study; and the potential for contamination after production, such as through packaging. From this report, the Commission determined that untreated and unfinished woods from tree trunks do not contain any of the elements in ASTM F963 in concentrations greater than their respective solubility limits, and thus, they are not required to be third party tested to ensure compliance with the specified solubility test.¹⁰ TERA relied on this information in TERA Task Report 14 to determine that the virgin wood material used in the manufacture of

⁹ <http://www.cpsc.gov/Global/Research-and-Statistics/TechnicalReports/Toys/TERAReportASTMElements.pdf>.

¹⁰ 80 FR 78651 (Dec. 17, 2015).

EWPs does not, and will not, contain any of the elements in ASTM F963 in concentrations greater than their respective solubility limits.

2. TERA Task 11 Report

In the Task 11 Report, TERA conducted a literature search on the production and use of 11 specified phthalates in consumer products.¹¹ The 11 phthalates researched by TERA were based on the recommendations made in the CHAP report. The 11 phthalates included the eight prohibited phthalates that are subject to the final rule prohibiting children's toys and child care articles containing specified phthalates issued in October 2017 and codified in 16 CFR part 1307. (82 FR 49938). Table 2 lists the phthalates researched by TERA. TERA's research focused on the following factors:

- The raw materials used in the production of the specified phthalates;
- The manufacturing processes used worldwide to produce the specified phthalates;
- Estimated annual production of the specified phthalates;
- Physical properties of the specified phthalates (*e.g.*, vapor pressure, flashpoint, water solubility, temperature at which chemical breakdown occurs);
- Applications for phthalates use in materials and consumer and non-consumer products; and
- Other potential routes by which phthalates can be introduced into an otherwise phthalates-free material (*e.g.*, migration from packaging, recycling, reuse, product breakdown).

¹¹ <http://www.cpsc.gov/Global/Research-and-Statistics/Technical-Reports/Other%20Technical%20Reports/TERAReportPhthalates.pdf>.

Table 2: Phthalates Researched in the Task 11 Report *Prohibited Phthalates under 16 CFR Part 1307	
Phthalate	CASRN¹²
*DEHP: di-(2-ethylhexyl) phthalate	117-81-7
*DBP: dibutyl phthalate	84-74-2
*BBP: benzyl butyl phthalate	85-68-7
*DINP: diisononyl phthalate	28553-12-0, 68515-48-0
DIDP: diisodecyl phthalate	26761-40-0, 68515-49-1
DnOP: di-n-octyl phthalate	117-84-0
DIOP: diisooctyl phthalate	27554-26-3
*DIBP: diisobutyl phthalate	84-69-5
*DPENP: di-n-pentyl phthalate	131-18-0
*DHEXP: di-n-hexyl phthalate	84-75-3
*DCHP: dicyclohexyl phthalate	84-61-7

TERA found that phthalates are used generally as plasticizers or softeners of certain plastics, primarily polyvinyl chloride (PVC), as solvents, and as component parts of inks, paints, adhesives, and sealants.

3. TERA Task 14 Report

In the Task 14 Report, TERA conducted a literature search on the production of three EWPs: particleboard, hardwood plywood, and medium-density fiberboard.¹³ TERA first researched authoritative sources, such as reference books and textbooks, along with

¹² A CAS Registry Number is assigned to a substance when it enters the CAS REGISTRY database. <https://www.cas.org/content/chemical-substances/faqs>.

¹³ <https://www.cpsc.gov/s3fs-public/ManufacturedWoodsTERATask14Report.pdf>.

Internet resources, for general information about EWPs, adhesives, raw materials, manufacturing processes, and the potential use of recycled materials. TERA used this information and consulted technical experts to identify key words for searching the literature. These key words were then used to conduct primary literature searches for research studies and publications. In addition, TERA searched for Safety Data Sheets (SDS) for information on raw materials. TERA researched the possibility of the raw materials or finished products in the three EWPs to contain:

- Lead in concentrations exceeding 100 ppm;
- Any of the specified elements that are included in the safety standard for children’s toys, ASTM F963, *Standard Consumer Safety Specification for Toy Safety*, in concentrations exceeding specified solubility limits; or
- Any of 10 specified phthalates in concentrations greater than 0.1 percent (1000 ppm), listed in Table 3.¹⁴

Table 3: Phthalates Researched in the Task 14 Report *Prohibited Phthalates under 16 CFR Part 1307	
Phthalate	CASRN
*DEHP: di-(2-ethylhexyl) phthalate	117-81-7
*DBP: dibutyl phthalate	84-74-2
*BBP: benzyl butyl phthalate	85-68-7
*DINP: diisononyl phthalate	28553-12-0, 68515-48-0

¹⁴ The TERA research providing the basis for this determination covered the six phthalates subject to the statutory prohibition, as well as the additional phthalates the Commission proposed to prohibit in children’s toys and child care articles, with the exception of DIOP. The Commission has issued a final rule prohibiting eight phthalates in children’s toys and child care articles on October 17, 2017 (82 FR 49938).

DIDP: diisodecyl phthalate	26761-40-0, 68515-49-1
DnOP: di-n-octyl phthalate	117-84-0
*DIBP: diisobutyl phthalate	84-69-5
*DPENP: di-n-pentyl phthalate	131-18-0
*DHEXP: di-n-hexyl phthalate	84-75-3
*DCHP: dicyclohexyl phthalate	84-61-7

TERA found that, generally, the processes for manufacturing the three EWP are similar; wood fibers, chips, layers, or a similar raw wood product are processed with various adhesive formulations (sometimes referred to as binders or resins) along with other additives to create uniform sheets with known characteristics and performance qualities. The main difference among the three types of EWPs relates primarily to the size and morphology (shape and surface characteristics) of the wood material used in their production.

TERA reviewed the literature to assess whether the specified EWPs might contain lead or one or more of the other elements at levels that exceed the ASTM solubility limits, or any of the specified phthalates in concentrations greater than the specified limits. TERA reported that no studies found lead, the ASTM F963 elements, or the specified phthalates in concentrations greater than their limits in particleboard, hardwood plywood, or medium-density fiberboard, that are unfinished and untreated, and made from virgin wood or pre-consumer wood waste.

In the Task 14 Report, TERA described an unfinished EWP as one that does not have any surface treatments applied at manufacture, such as factory-applied coatings. An untreated EWP is one that does not have any additional finishes applied at manufacture,

such as flame retardants or rot-resistant finishes. TERA described “virgin wood” as wood logs, fibers, chips, or layers that have not been recycled from a previous use. TERA described “pre-consumer wood waste” as wood materials that have been recycled from an industrial process before being made available for consumer use. Examples of this type of waste include trimmings from EWP panel manufacturing, sawdust from cutting logs, or remaining wood pieces from sawing a log into framing lumber.

The TERA report highlighted the potential for lead, the ASTM F963 elements, or the specified phthalates to be present in concentrations greater than those specified through the use of contaminated recycled material in EWPs made from recycled wood waste or EWPs that have post-manufacturing treatments or finishes. Recycled wood waste may be made from reclaimed or post-consumer wood waste. “Post-consumer wood waste” is described as wood waste that is comprised of materials that are recovered from their original use and subsequently used in a new product. Examples of this type of waste include recycled demolition wood, packaging materials, such as pallets and crates, used wood from landscape care (*i.e.*, from urban and highway trees, hedges, and gardens), discarded furniture, and wood waste from industrial, construction, and commercial activities.

The three types of EWPs reviewed by TERA are discussed below.

a. Particleboard

Particleboard is a composite of wood chips, adhesives, and other additives pressed into a board. Adhesive formulations are used to bond wood chips, which are then formed into mats that are layered to create uniform boards in a range of dimensions.

Particleboard is used widely in furniture making and other interior (or nonstructural) uses. The constituent parts of particleboard reported by TERA can include (by weight):

- Wood (60-99+ percent);
- Adhesive formulation (0-17 percent, with 5-11 percent most common);
- Phenol-formaldehyde (uncommon but potential for use), urea-formaldehyde, melamine-urea-formaldehyde, polymeric methylene-diphenyl-diisocyanate (pMDI);
- Waxes (0.3-1 percent);
- Other additives (up to 2 percent); or
- Scavengers or additional unspecified materials.

TERA researched the possibility of lead, the ASTM F963 elements, or the specified phthalates, in concentrations greater than their specified limits in particleboard. TERA identified little information on measurements of lead and the ASTM F963 elements in particleboard, and found no studies that measured the specified phthalates. TERA identified two references where particleboard made from both untreated and copper chromate arsenic-(CCA) treated wood chips was tested. Arsenic and chromium were undetected in the particleboards made from virgin wood chips. However, the particleboard composed of 25 percent wood chips from reclaimed CCA-treated wood products contained 895 and 832 ppm of arsenic and chromium, respectively, without adversely affecting the mechanical performance of the board. Another study that discussed “recycled particleboard” was identified as wood waste obtained from a wood recycling plant.

Apart from the studies on particleboard made from wood waste that may contain post-consumer wood waste or post-manufacturing treatments, TERA reported that no studies found lead, the ASTM F963 elements, or the specified phthalates in concentrations greater than the specified limits in untreated and unfinished particleboard.

b. Hardwood Plywood

Plywood is a layered board of wood veneers, where the layers have alternating, perpendicular wood grain directions. Less commonly, the board might have a core of other EWPs with wood veneers as the outer layers. Hardwood plywood, addressed in this report, is a type of plywood that is composed of angiosperms (*i.e.*, “hardwoods,” such as oak or maple) and used primarily in furniture and for other interior (nonstructural) purposes, as well as in playground equipment, sports equipment, and musical instruments. The constituent parts of hardwood plywood reported by TERA can include (by weight):

- Wood (75-99+ percent);
- Adhesive formulation (0.02-20 percent, with 1 percent to 5 percent most common);
- Phenol-formaldehyde or phenol-resorcinol-formaldehyde (likely for use in structural plywood but potential for application to hardwood plywood), urea-formaldehyde, melamine-formaldehyde, or melamine-urea-formaldehyde, or polyvinyl acetate (PVAc); or
- Other additives (less than 2 percent).

TERA researched the possibility of lead, the ASTM F963 elements, or the specified phthalates in concentrations greater than those specified in hardwood plywood. TERA identified only one study that measured lead and the ASTM F963 elements in plywood, and found no studies that measured the specified phthalates. Concentrations of cadmium, chromium, and lead were all less than the solubility limits in “plain” plywood. In addition, because hardwood plywood is made from sheets of wood veneer, it is less likely to contain recycled wood content, unless it incorporates a core of some other EWPs, such as particleboard or medium-density fiberboard.

Aside from the studies on recycled wood waste that may contain post-consumer wood waste or post-manufacturing treatments in a particleboard, medium-density fiberboard, or other EWP core, TERA reported that no studies found lead, the ASTM F963 elements, or the specified phthalates in concentrations greater than the specified limits in untreated and unfinished hardwood plywood. However, TERA identified research that indicated that polyvinyl acetate (PVAc) can be used as an adhesive system for hardwood plywood, as discussed in section (d) below.

c. Medium-Density Fiberboard

Medium-density fiberboard (MDF) is a composite of wood fibers, an adhesive formulation, and other additives pressed into a board. MDF is a product similar to particleboard, differing mostly due to the use of fiber rather than chips. It is used primarily in furniture and for other interior (nonstructural) purposes. The constituent parts of MDF reported by TERA can include (by weight):

- Wood (73-99+ percent);

- Adhesive formulation (0-25 percent with most common 5-12 percent);
- Phenol-formaldehyde (uncommon, but potentially used for moisture resistance), urea-formaldehyde (most commonly identified), methylene-diphenyl-diisocyanate (pMDI), melamine-formaldehyde, or melamine-urea-formaldehyde;
- Waxes (less than 1 percent); or
- Other additives (10-30 percent).

TERA researched the possibility of lead, the ASTM F963 elements, or the specified phthalates in concentrations greater than those specified in MDF. TERA did not identify any references that reported the presence of lead, the ASTM F963 elements, or the specified phthalates in MDF made with virgin wood.

Aside from the studies on recycled wood waste that may contain post-consumer wood waste or post-manufacturing treatments, TERA reported that no studies found lead, the ASTM F963 elements, or the specified phthalates in concentrations greater than the specified limits in untreated and unfinished MDF.

d. TERA's Findings on EWP Constituent Parts

Because few references were found directly addressing lead, the ASTM F963 elements, and the specified phthalates in EWPs, TERA also researched the constituent parts that could be used to manufacture EWPs, including wood and adhesives.

Wood

According to the manufacturing process information provided by TERA, virgin wood and wood residues are the main sources of wood fiber used in North America to

manufacture EWPs. Typically, these sources include low-value logs, industrial wood residues, or scraps and trim from furniture and EWP production. For example, hardwood plywood requires the trunks of trees to obtain the thin layers of veneer used to construct a sheet. TERA relied on the Task 9 Report and Commission findings on unfinished and untreated wood (80 FR 78651 (Dec. 17, 2015)) to determine that untreated and unfinished wood from the trunks of trees do not contain lead or the ASTM F963 elements in concentrations greater than the specified solubility limits. TERA also noted that, although phthalates can be taken up by trees and plants, the concentrations are negligible and less than the specified limit (0.1 percent).

Although TERA reported that the majority of EWPs are manufactured with virgin wood or pre-consumer wood waste fiber or chips, the wood component also can originate from recycled material. For EWPs made from recycled wood waste that may contain post-consumer wood waste, the TERA report highlighted the potential for lead, the ASTM F963 elements, or the specified phthalates to be present in concentrations greater than those specified through the use of contaminated recycled material. The TERA report cited multiple examples of the use of reclaimed or post-consumer wood material used to produce EWPs, both domestically and internationally. Specifically, TERA found studies showing that reclaimed lumber and wood waste could contain a myriad of contaminants, such as surface treatments (*e.g.*, paints, stains), metals, glues and adhesives, glass, paper, plastic, rubber and chemical treatments. Metals and organic materials may be present in paints, stains, varnishes, and polishes that are used on wood products (*e.g.*, furniture, window frames) and nails, screws, and other metal hardware might be attached to the recycled and recovered wood. These contaminants are intimately attached to the wood,

and therefore, some contaminants may pass through cleaning systems, contaminating the entire recovered wood stream.

TERA also reviewed another study, based in Italy, which evaluated the “recyclability” of used wood, by conducting elemental analysis of wood residues from wood recycling plants using a handheld fast energy dispersive X-ray fluorescence spectroscopy (ED-XRF) device. TERA found that the study provided some indication of the types and levels of contamination in various kinds of post-consumer wood waste. Elemental analysis results were compared to EU Community Ecolabel limits.¹⁵ For all wood products tested, 16 percent exceeded one or more of the Ecolabel limits, with the highest concentrations from lead, chromium, chlorine, copper, cadmium, and mercury. No samples had levels of arsenic over the 25 ppm limit (except a CCA-treated utility pole). Barium and lead were found in 10 percent to 20 percent of the samples, chromium and cadmium in 3 percent to 4 percent, and antimony, mercury, and arsenic ranged from 0.3 percent to 1.2 percent of samples. The sources most contaminated with non-wood content were from furniture and building materials, while pallets and shipping containers were least likely to be contaminated.¹⁶

TERA concluded that, with an increased interest and use of post-consumer recycled materials in EWP production, potential contamination by the specified elements and phthalates must be considered. To ensure that EWPs made from used wood fibers do

¹⁵ Ecolabel element concentrations are less than 25 mg/kg of arsenic, 25 mg/kg of mercury, 25 mg/kg of chromium, 50 mg/kg cadmium, 90 mg/kg lead, and 40 mg/kg copper (EU, 2004). Ecolabel limits are similar to ASTM solubility limits for the ASTM F963 elements.

¹⁶ Twenty-four percent of furniture and 18 percent of building materials had one or more ASTM F963 elements exceeding the limits which may be due to manufacturing processes such as painting, preservation, and overlaying, which are common with furniture and building materials. The most polluted types of wood waste were particleboard (37% exceeded Ecolabel limits), recycled particleboard (25% exceeded), and plywood (18% exceeded); while fiberboard (MDF and HDF) exceeded limits in 9 percent of samples.

not contain ASTM F963 elements or phthalates that exceed the specified limits, TERA indicated that the materials would need to be sorted carefully and tested to ensure that they are not contaminated.

Adhesive Formulations

Adhesive formulations hold together the wood chips, layers, or fibers to make EWP mats and sheets. Some of the formulations use a metal catalyst during the curing process. TERA identified a number of references describing the presence of the ASTM F963 elements in adhesive formulations. However, TERA found very few references that would implicate EWPs. Although the use of barium was noted in multiple references, only one study appeared to be relevant to EWPs. This study suggested that barium, when used as a catalyst in an adhesive, could result in an EWP that exceeded the ASTM solubility level for barium.¹⁷ However, this method does not appear to be used currently in EWP production. TERA also noted studies that indicate the possible use of chromium as a catalyst in phenol formaldehyde resin, as well as the possible use of antimony or arsenic in a drier formulation for certain polymeric coatings. However, no references included information on concentrations or appeared to be relevant to EWPs.

Although many different adhesive formulations may be used in hardwood plywood, TERA noted that PVAc can be used as an adhesive system for hardwood plywood. The report cited sources (The Handbook of Adhesive Technology, USDA),

¹⁷ Wang and Zhang (2011) studied the use of calcium hydroxide, Ba(OH)₂, and magnesium hydroxide and their effect on cure times for phenol formaldehyde adhesive formulations, finding that the use of Ba(OH)₂ could be a viable means to speed up cure times. Both calcium hydroxide and Ba(OH)₂ had similar cure times and are about the same price in bulk. Because the compounds would be used in an adhesive system, the catalyst is not expected to be recovered and so would remain in situ once curing is complete. If the catalyst remained in the adhesive, it could result in concentrations of barium exceeding the ASTM solubility limits.

which mentioned the use of some of the specified phthalates in PVAc adhesive formulations.¹⁸ TERA also identified research papers that included the use of DBP and DEHP in PVAc at concentrations greater than 0.1 percent.

C. Discussion of Comments to the NPR

The CPSC received seven comments in response to the NPR. Five of the comments did not address any matters regarding EWPs. These comments addressed environmental regulation issues concerning alternative energy, electric cars, and greenhouse gas emissions, among other topics. None of these comments addressed EWPs. Accordingly, these comments do not fall within the scope of the current rulemaking. Two comments addressed the proposed determinations for EWPs.

Comment 1: A commenter states that the use of third party testing and “verification of testing” for lead is important for ensuring product safety and that any change to the testing and verification requirements is “antithetical” to public safety.

Response 1: The commenter does not provide any data or information about EWPs that would support a testing requirement for lead for certain untreated and unfinished EWPs. Nor does the commenter address the data and information the Commission relied upon to demonstrate that certain untreated and unfinished EWPs do not contain lead above the limits specified by the lead content requirements. The Commission’s proposed EWP determinations only apply to EWPs that have not been treated or adulterated with materials that could result in the addition of lead, the ASTM

¹⁸ The USDA publication *Wood Handbook: Wood as an Engineering Material* (2010) explains that “Plasticizers, for example dibutyl phthalate, are used to soften the brittle vinyl acetate homopolymer in poly(vinyl acetate) emulsion adhesives. This is necessary to facilitate adhesive spreading and formation of a flexible adhesive film from the emulsion at and below room temperature.”

elements, or the specified phthalates at concentrations greater than their specified solubility limits. EWPs that do not meet the provisions of the rule would still be subject to applicable testing requirements.

Comment 2: A commenter expresses concern regarding the language of the proposed rule's determination, which states: "Accessible component parts of children's products, children's toys, and child care articles made with engineered wood products not listed in paragraphs (a)-(c) of this section are required to be third party tested pursuant to section 14(a)(2) of the CPSA and 16 CFR part 1107." The commenter asserts that the language negates the flexibility of the Commission's 2009 *Statement of Policy*. The commenter requests a revision of the language to state: "Accessible component parts of children's products, children's toys, and child care articles made with engineered wood products not listed in paragraphs (a)-(c) of this section must still be comprised of compliant materials pursuant to section 108 of CPSIA, Public Law 110-314 as amended by H.R. 2714, Public Law 112-28."

Response 2: The proposed EWP determinations do not negate the flexibility of the Commission's 2009 *Statement of Policy*.¹⁹ That policy was intended to give general guidance on the types of materials that may contain phthalates. Section 108 of the CPSIA is limited to plasticized component parts and other materials that may contain phthalates. The Commission has already identified in the proposed rule the potential use of phthalates in polyvinyl acetate (PVAc) adhesive in hardwood plywood that would result in an EWP with phthalate concentrations greater than 0.1 percent. However, to make it clear that only products that are subject to one or more of the requirements for lead,

¹⁹ https://www.cpsc.gov/s3fs-public/pdfs/blk_media_componenttestingpolicy.pdf

ASTM elements, and the specified phthalates, or that contain post-consumer wood waste, must be third party tested, the Commission is revising the proposed language in section 1252.3(e). That section now states that accessible component parts of children's products, children's toys, and child care articles made with engineered wood products other than the specified EWPs listed in the rule, or that contain post-consumer wood waste, are required to be third party tested pursuant to section 14(a)(2) of the CPSA and 16 CFR part 1107 and sections 101, 106, or 108 of the CPSIA, as applicable.

In addition, to reflect the current list of prohibited phthalates in section 108 of the CPSIA, as required in the Commission's final rule issued on October 27, 2017, § 1252.1(c) is revised to include all of the permanently prohibited phthalates in any children's toy or child care article that contains concentrations of more than 0.1 percent of DEHP, DBP, BBP, DINP, DIBP, DPENP, DHEXP, or DCHP.

D. Determination for EWPs

1. Legal Requirements for a Determination

As noted above, section 14(a)(2) of the CPSA requires third party testing for children's products that are subject to a children's product safety rule. 15 U.S.C. 2063(a)(2). Children's products must comply with the lead limits in section 101 of the CPSIA. 15 U.S.C. 1278a. Children's toys must comply with the solubility limits for elements under the ASTM toy standard in section 106 of the CPSIA. 15 U.S.C. 2056b. Children's toys and child care articles must comply with the phthalates prohibitions in section 108 of the CPSIA. 15 U.S.C. 2057c. In response to statutory direction, the Commission has investigated approaches that would reduce the burden of third party testing while also assuring compliance with CPSC requirements. As part of that

endeavor, the Commission has considered whether certain materials used in children's products, children's toys, and child care articles would not require third party testing.

To issue a determination that an EWP does not require third party testing, the Commission must have sufficient evidence to conclude that the product consistently complies with the CPSC's requirements to which the EWP is subject, so that third party testing is unnecessary to provide a high degree of assurance of compliance. Under 16 CFR part 1107, section 1107.2 defines "a high degree of assurance" as "an evidence-based demonstration of consistent performance of a product regarding compliance based on knowledge of a product and its manufacture."

For accessible component parts of children's products, children's toys, and child care articles subject to sections 101, 106, and 108 of the CPSIA, compliance to the specified content limits is always required, irrespective of any testing exemptions. Thus, a manufacturer or importer who certifies a children's product, children's toy or child care article, must ensure the product's compliance. The presence of lead, the ASTM F963 elements, or the specified phthalates do not have to be intended to require compliance. The presence of these chemicals, whether for any functional purpose, as a trace material, or as a contaminant, must be in concentrations less than the specified content or solubility limits for the material to be compliant. Additionally, the manufacturer or importer must have a high degree of assurance that the product has not been adulterated or contaminated to an extent that would render it noncompliant. For example, if a manufacturer or importer is relying on a determination that an EWP does not contain lead, ASTM F963 elements, or specified phthalates in concentrations greater than the specified limits in a

children's product, children's toy, or child care article, the manufacturer must ensure that the EWP is one on which a determination has been made.

The Commission finds, based on the staff's review of TERA's Task 14 report regarding reclaimed or post-consumer waste assessment in EWPs, that EWPs with post-consumer wood content and post-manufacturing waste could contain unwanted contaminants, such as paint or stains, metals from nails or fasteners, or adhesive formulations. Additionally, based on staff's review of the Task 11 and Task 14 reports, the Commission finds that PVAc used as an adhesive formulation in the manufacture of EWPs could contain at least one of the specified phthalates in hardwood plywood manufacturing that could result in the EWP exceeding the allowable levels of the specified phthalates. Accordingly, the Commission concludes that there is not a high degree of assurance that EWPs made from post-consumer wood waste or post-manufacturing treatments or finishes are compliant with sections 101, 106, or 108 of the CPSIA, or that hardwood plywood that contain PVAc are compliant with 108 of the CPSIA.

Based on the information provided in the TERA Task reports, staff's review of TERA's source references in the Task reports, and with the additional clarification that only products that are subject to one or more of the requirements for lead, ASTM elements, and the specified phthalates must be third party tested, the Commission determines that untreated and unfinished EWPs (particleboard, hardwood plywood, and medium-density fiberboard) made from virgin wood or pre-consumer wood waste, do not contain lead, or any of the specified elements in ASTM F963 in concentrations greater than their specified solubility limits. In addition, with the exception of hardwood

plywood that contains PVAc adhesive formulations, the Commission determines that the specified EWPs do not contain any of the specified phthalates in concentrations greater than 0.1 percent. The Commission's determinations on EWPs are limited to unfinished and untreated EWPs made from virgin wood or pre-consumer wood waste. Children's products, children's toys, and child care articles made from post-consumer wood waste, or from EWPs that have other materials that are applied to or added on to the EWP after it is manufactured, such as treatments and finishes, would be subject to third party testing requirements, unless the component part has a separate determination which does not require third party testing for certification purposes.

2. Statutory Authority

Section 3 of the CPSIA grants the Commission general rulemaking authority to issue regulations, as necessary, to implement the CPSIA. Public Law No. 110-314, sec. 3, Aug. 14, 2008. Section 14 of the CPSA, which was amended by the CPSIA, requires third party testing for children's products subject to a children's product safety rule. 15 U.S.C. 2063(a)(2). Section 14(d)(3)(B) of the CPSA, as amended by Public Law No. 112-28, gives the Commission the authority to "prescribe new or revised third party testing regulations if it determines that such regulations will reduce third party testing costs consistent with assuring compliance with the applicable consumer product safety rules, bans, standards, and regulations." *Id.* 2063(d)(3)(B). These statutory provisions authorize the Commission to issue a rule determining that certain EWPs would not be determined to contain lead, the ASTM F963 elements, and the specified phthalates in concentrations greater than their specified limits, and thus, are not required to be third party tested to ensure compliance with sections 101, 106, and 108 of the CPSIA.

The determinations for the specified EWPs would relieve children's product certifiers from third party testing burdens, while assuring compliance with sections 101, 106, and 108 of the CPSIA for component parts made from the specified EWPs. However, the determinations would only relieve the manufacturers' obligation to have the specified EWPs tested by a CPSC-accepted third party laboratory. Children's products, children's toys, and child care articles must still comply with the substantive content limits in sections 101, 106, and 108 of the CPSIA, regardless of any relief on third party testing requirements. Finally, even if a determination is in effect and third party testing is not required, a certifier must still issue a certificate.

3. Description of the Rule

This rule creates a new part 1252 for *Children's Products, Children's Toys, and Child Care Articles: Determinations Regarding Lead, ASTM F963 elements, and Phthalates for Engineered Wood Products*.

- Section 1252.1(a) of the rule explains the statutorily created requirements that limit lead in children's products under the CPSIA and the third party testing requirements for children's products.
- Section 1252.1(b) of the rule explains the statutorily created requirements for limiting the ASTM F963 elements in children's toys under the CPSIA and the third party testing requirements for children's toys.
- Section 1252.1(c) of the rule explains the statutorily created requirements limiting phthalates for children's toys and child care articles under the CPSIA and the third party testing requirements for children's toys and child care articles. This section is revised to reflect the final rule issued on phthalates that permanently prohibits any children's toy or child care article that contains concentrations of more than 0.1 percent of di-(2-ethylhexyl) phthalate (DEHP), dibutyl phthalate (DBP), or benzyl butyl phthalate (BBP). In addition, in accordance with section 108(b)(3) of the CPSIA, 16 CFR part 1307 prohibits any children's toy or child care article that contains concentrations of more than 0.1 percent of diisononyl phthalate (DINP), diisobutyl phthalate (DIBP), di-*n*-pentyl phthalate (DPENP), di-*n*-hexyl phthalate (DHEXP), or dicyclohexyl phthalate (DCHP).
- Section 1252.2 of the rule provides definitions that apply to part 1252.

- Section 1252.3(a) of the rule establishes the Commission’s determinations that specified EWPs do not exceed the lead content limits with a “high degree of assurance,” as that phrase is defined in 16 CFR part 1107.
- Section 1252.3(b) of the rule establishes the Commission’s determinations that specified EWPs do not exceed the solubility limits for ASTM F963 elements with a “high degree of assurance,” as that phrase is defined in 16 CFR part 1107.
- Section 1252.3(c) of the rule establishes the Commission’s determinations that specified EWPs do not exceed the phthalates content limits, with the exception of hardwood plywood containing PVAc, with a “high degree of assurance,” as that phrase is defined in 16 CFR part 1107.
- Section 1252.3(d) of the rule provides that accessible component parts of children’s products, children’s toys, and child care articles made with the specified EWPs, are not required to be third party tested pursuant to section 14(a)(2) of the CPSA and 16 CFR part 1107.
- Section 1252.3(e) of the rule is clarified to state that accessible component parts of children’s products, children’s toys, and child care articles made with engineered wood products not listed in paragraphs (a)-(c) of this section, or post-consumer wood waste, are required to be third party tested pursuant to section 14(a)(2) of the CPSA and 16 CFR part 1107 and sections 101, 106, or 108 of the CPSIA, as applicable.

E. Effective Date

The Administrative Procedure Act (APA) generally requires that a substantive rule must be published not less than 30 days before its effective date. 5 U.S.C. 553(d)(1).

Because the final rule provides relief from existing testing requirements under the CPSIA, the Commission concludes that 30 days is sufficient. Thus, the effective date is **[insert date 30 days after publication in the FEDERAL REGISTER]**.

F. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA), 5 U.S.C. 601–612, requires agencies to consider the impact of proposed and final rules on small entities, including small businesses. Section 604 of the RFA requires that agencies prepare a final regulatory flexibility analysis (FRFA) when promulgating final rules, unless the head of the agency certifies that the rule will not have a significant impact on a substantial number of small entities. The FRFA must describe the impact of the rule on small entities. CPSC staff prepared a FRFA, which is summarized below.

CPSC staff’s review shows that comprehensive estimates of the number of children’s products, children’s toys, and child care articles that contain component parts made from the specified engineered woods are not available. However, based on the number of domestic producers and sellers of these products, staff believes that a substantial number of small entities could be impacted by this regulation. Staff’s review indicates that there are approximately 81,505 small firms that manufacture or distribute children’s products, children’s toy or child care articles (6,976 manufacturers + 26,124 wholesalers + 48,405 retailers). Even if only a small proportion of these firms manufacture or sell products using the EWPs of interest, staff finds that a substantial number would benefit from the reduced testing burden. The impact of the determinations on small businesses would be to reduce the burden of third party testing for firms and are expected to be entirely beneficial. The current cost of testing, on a per-test basis, is

reflective of the expected cost reductions that would result from the determinations, and are as follows:

- Lead - The cost of lead testing ranges from \$50 to more than \$100 per component through Inductively Coupled Plasma (ICP) testing. If one uses X-ray fluorescence (XRF) spectrometry, which is an acceptable method for certification of third party testing for lead content, the costs can be greatly reduced to approximately \$5 per component. If a component part made with one of the specified engineered woods is painted, the component part would be exempt from the third party testing requirement, but the paint would still require lead testing.
- ASTM F963 Elements - Based on published invoices and price lists, the cost of a third party test for the ASTM F963 elements ranges from around \$60 in China, up to around \$190 in the United States, using ICP. This cost can be greatly reduced with the use of high definition X-ray fluorescence spectrometry (HDXRF), which is an acceptable method for certification of third party testing for the presence of the ASTM elements. The cost can be reduced to about \$40 per component part. It should be noted that lead is one of the ASTM elements, so this testing would also cover the cost of lead testing for component parts.
- Phthalates - The cost of phthalate testing is relatively high: between about \$125 and \$350 per component, depending upon where the testing is conducted and any discounts that are applicable. Because one product might have multiple components that require testing, the cost of testing a single product for phthalates could exceed \$1,000 in some cases. Moreover, more than one sample might have

to be tested to provide a high degree of assurance of compliance with the requirements for testing.

To the extent that small businesses have lower production or lower sales volume than larger businesses, these determinations would be expected to have a disproportionately beneficial impact on small businesses. This beneficial impact is due to spreading the costs of the testing over fewer units. However, small entities that need fewer third party tests may not qualify for discounts that some laboratories may offer their larger customers. In addition, the possible benefits associated with the determinations might be somewhat lower to the extent that firms were already taking advantage of component part testing as allowed by 16 CFR part 1109. Additionally, some firms have reduced their testing costs by using XRF or HDXRF technology, which is less expensive than ICP, and would reduce the marginal benefit of these determinations.

The determinations would not impose any new reporting, recordkeeping, or other compliance requirements on small entities. In fact, because the rule would eliminate a testing requirement, there would be a small reduction in some of the recordkeeping burden under 16 CFR parts 1107 and 1109 because manufacturers would no longer have to maintain records of third party tests for the component parts manufactured from these engineered woods for lead, the ASTM F963 elements, or the specified phthalates. Based on staff's review, the Commission finds that that the burden reduction from this determination rule could potentially result in significant benefits for a substantial number of manufacturers, importers, or retailers of the relevant product categories.

Under section 604 of the Regulatory Flexibility Act, a FRFA should include a "statement of the factual, policy, and legal reasons for selecting the alternative adopted in

the final rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected.” The final rule is itself, the result of CPSC’s efforts to reduce third party testing costs consistent with assuring compliance with all applicable consumer product safety rules. Therefore, CPSC considered few alternatives, other than expanding the list of engineered woods for which determinations could be made. CPSC staff identified these three types of EWPs for study, based on stakeholder feedback, the likelihood of being used in products subject to children’s product, children’s toy, or child care article certification requirements, and available resources. However, the Commission did not receive any other comments or other information on any additional engineered wood materials for further burden-reduction activities.

G. Environmental Considerations

The Commission’s regulations provide a categorical exclusion for most Commission rules from any requirement to prepare an environmental assessment or an environmental impact statement because they “have little or no potential for affecting the human environment.” 16 CFR 1021.5(c)(2). This rule falls within the categorical exclusion, so no environmental assessment or environmental impact statement is required. The Commission’s regulations state that safety standards for products normally have little or no potential for affecting the human environment. 16 CFR 1021.5(c)(1). Nothing in this rule alters that expectation.

List of Subjects in 16 CFR Part 1252

Business and industry, Consumer protection, Imports, Infants and children, Product testing and certification, Toys.

For the reasons stated in the preamble, the Commission amends title 16 of the CFR to add part 1252 to read, as follows:

**PART 1252 – Children’s Products, Children’s toys, and Child Care Articles:
Determinations Regarding Lead, ASTM F963 Elements, and Phthalates for
Engineered Wood Products**

Sec.

1252.1 Children’s products, children’s toys, and child care articles containing lead, ASTM F963 elements, and phthalates in engineered wood products and testing requirements.

1252.2 Definitions.

1252.3 Determinations for engineered wood products.

Authority: Sec. 3, Pub. L. 110-314, 122 Stat. 3016; 15 U.S.C. 2063(d)(3)(B).

§ 1252.1 Children’s products, children’s toys, and child care articles containing lead, ASTM F963 elements, and phthalates in engineered wood products and testing requirements.

(a) Section 101(a) of the Consumer Product Safety Improvement Act of 2008 (CPSIA) provides that any children’s product, material, or component part or a children’s product must comply with a lead content limit that does not exceed 100 parts per million. Materials used in children’s products subject to section 101 of the CPSIA must comply with the third party testing requirements of section 14(a)(2) of the Consumer Product Safety Act (CPSA), unless listed in 16 CFR 1500.91.

(b) Section 106 of the CPSIA made provisions of ASTM F963, Consumer

Product Safety Specifications for Toy Safety, a mandatory consumer product safety standard. Among the mandated provisions is section 4.3.5 of ASTM F963 which requires that surface coating materials and accessible substrates of children's toys that can be sucked, mouthed, or ingested, must comply with solubility limits that the toy standard establishes for eight elements. Materials used in children's toys subject to section 4.3.5 of the toy standard must comply with the third party testing requirements of section 14(a)(2) of the CPSA, unless listed in 16 CFR 1251.2.

(c) Section 108(a) of the CPSIA permanently prohibits any children's toy or child care article that contains concentrations of more than 0.1 percent of di-(2-ethylhexyl) phthalate (DEHP), dibutyl phthalate (DBP), or benzyl butyl phthalate (BBP). In accordance with section 108(b)(3) of the CPSIA, 16 CFR part 1307 prohibits any children's toy or child care article that contains concentrations of more than 0.1 percent of diisononyl phthalate (DINP), diisobutyl phthalate (DIBP), di-*n*-pentyl phthalate (DPENP), di-*n*-hexyl phthalate (DHEXP), or dicyclohexyl phthalate (DCHP). Materials used in children's toys and child care articles subject to section 108(a) of the CPSIA and 16 CFR part 1307 must comply with the third party testing requirements of section 14(a)(2) of the CPSA, unless listed in 16 CFR 1308.2.

§ 1252.2 Definitions.

In addition to the definitions given in sections 101, 106, and 108 of the CPSIA, the following definitions apply for this part 1252.

(a) *Post-consumer wood waste* describes wood waste that is comprised of materials that are recovered from their original use and subsequently used in a new product. Examples of this type of waste include recycled demolition wood, packaging

materials such as pallets and crates, used wood from landscape care (*i.e.*, from urban and highway trees, hedges, and gardens), discarded furniture, and waste wood from industrial, construction, and commercial activities.

(b) *Pre-consumer wood waste* describes wood materials that have been recycled from an industrial process before being made available for consumer use. Examples of this type of waste include trimmings from engineered wood product (EWP) panel manufacturing, sawdust from cutting logs, or remaining wood pieces from sawing a log into framing lumber.

(c) *Unfinished* means an EWP that does not have any surface treatments applied at manufacture, such as factory-applied coatings. Examples of such treatments may include paint or similar surface coating materials, wood glue, or metal fasteners, such as nails or screws.

(d) *Untreated* means an EWP that does not have any additional finishes applied at manufacture. Examples of such finishes may include flame retardants or rot resistant finishes.

(e) *Virgin wood* describes wood logs, fibers, chips, or layers that have not been recycled from a previous use.

§ 1252.3 Determinations for engineered wood products.

(a) The following engineered wood products do not exceed the lead content limits with a high degree of assurance as that term is defined in 16 CFR part 1107:

(i) Particleboard that is untreated and unfinished made from virgin wood or pre-consumer wood waste;

(ii) Hardwood plywood that is untreated and unfinished made from virgin wood or pre-consumer wood waste; and

(iii) Medium-density fiberboard that is untreated and unfinished made from virgin wood or pre-consumer wood waste.

(b) The following engineered wood products do not exceed the ASTM F963 elements solubility limits set forth in 16 CFR part 1250 with a high degree of assurance as that term is defined in 16 CFR part 1107:

(i) Particleboard that is untreated and unfinished made from virgin wood or pre-consumer wood waste;

(ii) Hardwood plywood that is untreated and unfinished made from virgin wood or pre-consumer wood waste; and

(iii) Medium-density fiberboard that is untreated and unfinished made from virgin wood or pre-consumer wood waste.

(c) The following engineered wood products do not exceed the phthalates content limits with a high degree of assurance as that term is defined in 16 CFR part 1107:

(i) Particleboard that is untreated and unfinished made from virgin wood or pre-consumer wood waste;

(ii) Hardwood plywood that is untreated and unfinished made from virgin wood or pre-consumer wood waste and does not contain polyvinyl acetate (PVAc) adhesive formulations; and

(iii) Medium-density fiberboard that is untreated and unfinished made from virgin wood or pre-consumer wood waste.

(d) Accessible component parts of children’s products, children’s toys, and child care articles made with EWPs, listed in paragraphs (a) through (c) of this section are not required to be third party tested pursuant to section 14(a)(2) of the CPSA and 16 CFR part 1107.

(e) Accessible component parts of children’s products, children’s toys, and child care articles made with engineered wood products not listed in paragraphs (a) through (c) of this section, or that contain post-consumer wood waste, are required to be third party tested pursuant to section 14(a)(2) of the CPSA and 16 CFR part 1107 and sections 101, 106, or 108 of the CPSIA, as applicable.

Dated: _____

Alberta E. Mills, Secretary
Consumer Product Safety Commission



Briefing Package

Final Rule: Recommendation for Determinations Regarding Third Party Testing of Engineered Wood Products for Lead, the ASTM F963 Elements, and Phthalates

June 6, 2018

The views expressed in this report are those of the CPSC staff, and they have not been reviewed or approved by, and may not necessarily reflect the views of, the Commission.

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**United States
Consumer Product Safety Commission
4330 East West Highway
Bethesda, Maryland 20814**

Memorandum

This document has been electronically
approved and signed.

Date: June, 6, 2018

TO: The Commission
Alberta E. Mills, Secretary

THROUGH: Patricia M. Hanz, General Counsel
Patricia H. Adkins, Executive Director
DeWane Ray, Deputy Executive Director for Safety Operations

FROM: George A. Borlase, Ph.D., P.E., Assistant Executive Director,
Office of Hazard Identification and Reduction
Jacqueline Campbell, Project Manager, Directorate for Engineering
Sciences, Office of Hazard Identification and Reduction

SUBJECT : **Recommendation for Determinations Final Rule Regarding Third Party
Testing of Engineered Wood Products for Lead, the ASTM F963
Elements, and Phthalates**

Executive Summary

The Consumer Product Safety Improvement Act directs the CPSC to take actions to eliminate unnecessary third party testing burdens while assuring compliance. Accordingly, CPSC contracted with Toxicology Excellence for Risk Assessment (TERA) to conduct literature reviews on the production of three types of engineered wood products (EWPs), particleboard, hardwood plywood, and medium-density fiberboard, and evaluate whether they potentially contain:

- (1) Lead in concentrations exceeding 100 parts-per-million (ppm),
- (2) Any of the specified elements included in the safety standard for toys, ASTM F963, *Standard Consumer Safety Specification for Toy Safety*, in concentrations exceeding specified limits, or
- (3) Any of 10 specified phthalates in concentrations greater than 0.1 percent (1000 ppm).

TERA identified thousands of references for screening by their search method, which TERA states is representative of the relevant information available.

On October 13, 2017, the Commission published a Notice of Proposed Rulemaking (NPR) in the *Federal Register*. The Commission proposed that certain untreated and unfinished¹ EWPs made from virgin² or pre-consumer³ materials do not contain lead in concentrations exceeding 100 ppm, any of the specified ASTM F963 elements in concentrations greater than their specified solubility limits, or any of the specified phthalates in concentrations greater than 0.1 percent (1000 ppm).⁴ Thus, accessible component parts made from such engineered wood in children's products, children's toys, and child care articles subject to sections 101, 106 and 108 of the CPSIA would not require third party testing for certification purposes. However, EWPs made from post-consumer wood waste⁵ potentially could contain lead, the ASTM F963 elements, or the specified phthalates. Accordingly, such products would require third party testing for certification purposes. Two public comments were received that raised issues on the EWP determinations, which are discussed below.

CPSC staff recommends that the Commission approve a final rule that is substantially the same as the proposal, with one clarification to the proposed language in § 1252.3(e) in response to a commenter. The scope of any determinations regarding lead, the ASTM F963 elements, or the specified phthalates is limited to certain unfinished and untreated EWPs, specifically particleboard, hardwood plywood, or medium-density fiberboard, used in children's products, children's toys, and child care articles. Most consumer products made from EWPs will have additional materials that are applied, or added on, to the EWPs after the EWPs have been manufactured. These additional materials may include paint or similar surface coating materials, adhesives, such as wood glue, or metal fasteners, such as nails or screws. Therefore, unless these other component parts also have a determination that they do not contain one or more of the regulated substances, they would be subject to third party testing, if they are used in children's products, children's toys, and child care articles.

1 Introduction

Section 14 of the Consumer Product Safety Act (CPSA),⁶ as amended by the Consumer Product Safety Improvement Act of 2008 (CPSIA),⁷ requires third party testing of children's

¹ The TERA Task 14 report explains that an unfinished EWP does not have any surface treatments applied at manufacture, such as factory-applied coatings. An untreated EWP does not have any additional finishes applied at manufacture such as flame retardants or rot resistant finishes.

² The term *virgin wood* describes wood logs, fibers, chips, or layers that have not been recycled from a previous use.

³ The term *pre-consumer wood waste* describes wood logs, fibers, chips, or layers that have been recycled from an industrial process before being made available for consumer use. Examples of this type of waste include trimmings from EWP panel manufacturing, sawdust from cutting logs, or remaining wood pieces from sawing a log into framing lumber.

⁴ 82 FR 47645

⁵ The term *post-consumer wood waste* describes materials that are recovered from their original use and subsequently used in a new product. Examples of this type of waste include recycled demolition wood, packaging materials, such as pallets and crates, used wood from landscape care (*i.e.*, from urban and highway trees, hedges, and gardens), discarded furniture, and wood waste from industrial, construction, and commercial activities.

⁶ <https://www.cpsc.gov/PageFiles/105435/cpsa.pdf?epslanguage=en>

⁷ <http://www.cpsc.gov/PageFiles/129663/cpsia.pdf>.

products subject to an applicable rule, ban, standard or regulation. A “children’s product” is defined as a consumer product designed or intended primarily for children 12 years of age or younger.

On August 12, 2011, Public Law No. 112-28 (Pub. L. No. 112-28) was enacted. Section 2(a)(3)(B) of Pub. L. No. 112-28 states that the Commission:

. . . may prescribe new or revised third party testing regulations if it determines that such regulations will reduce third party testing costs consistent with assuring compliance with the applicable consumer product safety rules, bans, standards, and regulations.

On November 8, 2011, the Commission issued a rule on component parts, *Conditions and Requirements for Relying on Component Part Testing or Certification, or Another Party’s Finished Product Testing or Certification, to Meet Testing and Certification Requirements*, 16 CFR part 1109 (the 1109 rule).⁸ Under the 1109 rule, parties that test or certify consumer products pursuant to sections 14(a) and 14(i) of the CPSA may test products at the component part level rather than as a finished consumer product. Accordingly, any Commission determinations that certain component parts do not require third party testing may be declared on a certificate at the component part level.

Section 101 of the CPSIA has two requirements associated with lead in children’s products. First, no accessible part of a children’s product may contain more than 100 parts per million (ppm) lead content. Second, paint or other surface coatings on children’s products and some furniture⁹ may not contain lead in concentrations greater than 90 ppm. Thus, products subject to the lead content or surface coating limits require passing test results from a CPSC-accepted third party laboratory or a Commission determination for the manufacturer to issue a Children’s Product Certificate (CPC), before the products can be entered into commerce.

Section 106 of the CPSIA states that the provisions of ASTM International (ASTM) *Standard Consumer Safety Specifications for Toy Safety* (ASTM F963, toy standard) “shall be considered to be consumer product safety standards issued by the Commission under section 9 of the CPSA (15 U.S.C. § 2058).”¹⁰ Thus, toys¹¹ subject to ASTM F963¹² require passing test

⁸ 76 FR 69546

⁹ Both children’s and general-use household furniture are covered under the lead requirements.

¹⁰ ASTM F963-16 is a consumer product safety standard except for section 4.2 and Annex 4, or any provision that restates or incorporates an existing mandatory standard or ban promulgated by the Commission or by statute.

¹¹ A “children’s toy” is defined in section 1.3 of ASTM F963-17 as any object designed, manufactured, or marketed as a plaything for children under 14 years of age. However, the term “children’s toy” is defined in section 108(e)(1)(B) of the CPSIA as a consumer product designed or intended by the manufacturer for a child 12 years of age or younger for use by the child when the child plays. Only toys intended for a child 12 years of age or younger are subject to certification requirements.

¹² Although the TERA report focused on the -11 version of ASTM F963, the currently accepted version is ASTM F963-17. The content requirements for the specified elements did not change from the -11 to the -17 version, but the testing method for the specified elements now allows the use of High-Definition X-Ray Fluorescence Spectroscopy (HDXRF) for total element screening. See section 8.3.1.4 of ASTM F963-17.

results from a CPSC-accepted third party laboratory or a Commission determination for the manufacturer to issue a CPC, before the toys can be entered into commerce.

Section 108 of the CPSIA established permanent and interim prohibitions on the sale of certain consumer products containing specific phthalates. That provision also directed the CPSC to convene a Chronic Hazard Advisory Panel (CHAP) to study the effects on children's health of all phthalates and phthalate alternatives as used in children's toys and child care articles and to provide recommendations to the Commission regarding whether any phthalates or phthalate alternatives, other than those already permanently prohibited, should be prohibited. On October 27, 2017, the Commission published in the *Federal Register*, a final rule,¹³ effective April 25, 2018, prohibiting children's toys and child care articles containing concentrations greater than 0.1 percent of:

- 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); or
- dicyclohexyl phthalate (DCHP).

These restrictions apply to any plasticized component part of a children's toy or child care article or any other component part of a children's toy or child care article that is made of other materials that may contain phthalates.¹⁴

On October 13, 2017, the Commission published an NPR in the *Federal Register* to propose determinations that certain untreated and unfinished EWPs made from virgin or pre-consumer materials do not contain lead in concentrations exceeding 100 ppm, any of the specified ASTM F963 elements in concentrations greater than their specified solubility limits, and any of the specified phthalates in concentrations greater than 0.1 percent (1000 ppm) (82 FR 47645). The proposed EWP determinations would relieve product certifiers from third party testing requirements for accessible component parts for children's products, children's toys, and child care articles subject to sections 101, 106 and 108 of the CPSIA.

2 Comments Received

The CPSC received seven comments in response to the NPR. Five of the comments did not address any matters regarding EWPs.¹⁵ Accordingly, they do not fall within the scope of the

¹³ 82 FR 49938

¹⁴ 82 FR 49938

rule. Two comments addressed the proposed determinations for EWPs and are summarized below with staff's responses.

Comment 1: A commenter states that the use of third party testing and "verification of testing" for lead is important for ensuring product safety and that any change to the testing and verification requirements is "antithetical" to public safety.

Response 1: The commenter does not provide any data or information about EWPs that would support a testing requirement for lead for certain untreated and unfinished EWPs. Nor does the commenter address the data and information the Commission relied upon to demonstrate that certain untreated and unfinished EWPs do not contain lead above the limits specified by the lead content requirements. However, the Commission's proposed EWP determinations only apply to EWPs that have not been treated or adulterated with materials that could result in the addition of lead, the ASTM elements, or the specified phthalates at concentrations greater than their specified solubility limits. EWPs that do not meet the provisions of the rule would still be subject to applicable testing requirements. Thus, staff finds no basis to recommend any changes to the proposed rule based on this comment.

Comment 2: A commenter expresses concern that certain wording in the proposed rule "appears to negate the flexibility afforded in the 2009 Statement of Policy document on phthalates." The commenter suggests that "the flexibility granted by the CPSC's *Statement of Policy* should be maintained." The commenter requests changing proposed 16 CFR part 1252, Section .3(e), which currently states:

Accessible component parts of children's products, children's toys, and child care articles made with engineered wood products not listed in paragraphs (a)-(c) of this section are required to be third party tested pursuant to section 14(a)(2) of the CPSA and 16 CFR part 1107.

to instead state:

Accessible component parts of children's products, children's toys, and child care articles made with engineered wood products not listed in paragraphs (a)-(c) of this section must still be comprised of compliant materials pursuant to section 108 of CPSIA, Public Law 110-314 as amended by H.R. 2714, Public Law 112-28.

Response 2: The proposed EWP determinations do not negate the flexibility of the Commission's 2009 *Statement of Policy*.¹⁶ Section 108 of the CPSIA is limited to plasticized component parts and other materials that may contain phthalates. Staff has identified a potential use of phthalates in polyvinyl acetate (PVAc) adhesive whose use results in EWPs with phthalate concentrations greater than 0.1 percent.

¹⁵ These comments were from anonymous commenters and referenced mostly environmental regulation issues surrounding alternative energy, electric cars, and greenhouse gas emissions, among other topics. None of these comments addressed EWPs.

¹⁶ https://www.cpsc.gov/s3fs-public/pdfs/blk_media_componenttestingpolicy.pdf

However, to make it clear that only products that are subject to one or more of the requirements for lead, ASTM elements, and the specified phthalates must be third party tested, staff recommends referencing the section of the statute that requires compliance with the lead, toy standard, and phthalates requirements. Specifically, staff recommends changing the proposed language in § 1252.3(e) to emphasize that EWP materials in children’s products, children’s toys, and childcare articles other than the specified EWPs listed in the rule text, or that contain post-consumer wood waste, are required to be third party tested for lead content, the ASTM elements, and the specified phthalates under section 14(a)(2) of the CPSA and 16 CFR part 1107 and sections 101, 106, or 108 of the CPSIA, as applicable.

The draft final rule text of §1252.3(e) reads as follows:

Accessible component parts of children’s products, children’s toys, and child care articles made with engineered wood products not listed in paragraphs (a)-(c) of this section, or that contain post-consumer wood waste, are required to be third party tested pursuant to section 14(a)(2) of the CPSA and 16 CFR part 1107 and sections 101, 106, or 108 of the CPSIA, as applicable.

3 Discussion

The CPSC contracted with the Toxicology Excellence for Risk Assessment (TERA, or the contractor),¹⁷ who authored literature review reports on the content issues related to certain natural materials, plastics, and EWPs, specifically particleboard, hardwood plywood, and medium-density fiberboard, which formed a basis for CPSC staff’s proposed recommendation to the Commission regarding determinations for EWPs. For these proposed determinations, CPSC reviewed three reports produced by TERA: Task 9, *Concentrations of Selected Elements in Unfinished Wood and Other Natural Materials*;¹⁸ Task 11, *Exposure Assessment: Composition, Production, and Use of Phthalates*;¹⁹ and Task 14, *Final Report for CPSC Task 14*,²⁰ which addressed the potential for the presence of lead, phthalates, and other specified chemicals in engineered wood products. Based on the information provided in the TERA Task reports and staff’s review of TERA’s source references in the Task reports, with the clarification to §1252.3(e) discussed in the “Comments Received” section above, staff’s recommendations for the final rule are unchanged from the proposed rule.

Staff finds that the TERA Task 9 and Task 14 reports show that untreated and unfinished EWPs (particleboard, hardwood plywood, and medium-density fiberboard) made from virgin wood or pre-consumer wood waste, do not contain lead, or any of the specified elements in ASTM F963 in concentrations greater than their specified solubility limits. In addition, with the

¹⁷ Staff notes that subsequent to the contract work discussed here, most of the staff and functions of TERA reorganized as the Risk Science Center at the University of Cincinnati: <https://med.uc.edu/eh/centers/rsc>.

¹⁸ <http://www.cpsc.gov/Global/Research-and-Statistics/Technical-Reports/Toys/TERAReportASTMElements.pdf>.

¹⁹ <http://www.cpsc.gov/Global/Research-and-Statistics/Technical-Reports/Other%20Technical%20Reports/TERAReportPhthalates.pdf>.

²⁰ <https://www.cpsc.gov/s3fs-public/ManufacturedWoodsTERATask14Report.pdf>

exception of hardwood plywood that contains PVAc adhesive formulations, the specified EWPs do not contain any of the specified phthalates in concentrations greater than 0.1 percent. Accordingly, staff recommends that the Commission determine that these three EWPs in an untreated and unfinished state made from virgin wood or pre-consumer wood waste would not contain lead, the ASTM F963 elements, or the specified phthalates in excess of allowable levels.

The determinations for the specified EWPs would relieve children's product certifiers from third party testing burdens, while assuring compliance with sections 101, 106, and 108 of the CPSIA for component parts made from the specified EWPs. However, the determinations would only relieve the manufacturers' obligation to have the specified EWPs tested by a CPSC-accepted third party laboratory. Children's products, children's toys, and child care articles must still comply with the substantive content limits in sections 101, 106, and 108 of the CPSIA regardless of any relief on third party testing requirements.

Staff's review of TERA's Task 14 report regarding reclaimed or post-consumer waste assessment in EWPs indicates that EWPs with post-consumer wood content and post-manufacturing waste could contain unwanted contaminants, such as paint or stains, metals from nails or fasteners, or adhesive formulations. Additionally, staff's review of the Task 11 and Task 14 reports identified the adhesive formulations used in the manufacture of EWPs and found that one, PVAc, could contain at least one of the specified phthalates in hardwood plywood manufacturing that could result in the EWP exceeding the allowable levels of the specified phthalates. Accordingly, staff recommends that the Commission approve a final rule that is substantially the same as the NPR, and conclude that there is not a high degree of assurance that EWPs made from post-consumer wood waste or post-manufacturing treatments or finishes are compliant with sections 101, 106, or 108 of the CPSIA or that hardwood plywoods that contain PVAc adhesive formulations are compliant with section 108 of the CPSIA at this time.

Finally, as stated in the proposed rule and reemphasized in the final rule, to the extent that some consumer products made from EWPs contain additional materials that are applied, or added on to the EWPs after the EWPs have been manufactured, such as surface coatings, wood glue, metal fasteners, or plasticized parts, such post-EWP-manufactured additional materials fall outside the scope of these recommended EWP determinations and would require third party testing for compliance with the phthalates requirements if the EWPs were used in children's products, children's toys, and child care articles.

4 Impact on Small Entities that Manufacture and Import Children's Products, Children's Toys, and Childcare Articles

A. Impact on small businesses

The final rule would apply to small entities that manufacture or import children's products, children's toys, and child care articles that contain particleboard, hardwood plywood, or medium-density fiberboard. Although comprehensive estimates of the number of products that contain component parts made from the specified engineered woods are not available, these EWPs can be found in products like children's furniture, toys, sports equipment, and musical

instruments. The number of small wholesalers that import children's products, children's toys, or childcare articles as opposed to obtaining their product from domestic sources is not known. Also unknown is the number of small importers that must obtain or pay for the third party testing of their products.

Based on the number of domestic toy manufacturers classified as small businesses by the U.S. Bureau of the Census and evidence that the specified EWPs are used in children's products, children's toys, and child care articles, staff believes that a substantial number of small entities could be positively affected by this regulation.

B. Impact on testing burdens

As detailed in Tab A, the draft final rule would reduce the burden of third party testing on manufacturers and importers of children's products, children's toys, and child care articles by eliminating the requirement for third party testing to certify that, accessible component parts made of certain particleboard, hardwood plywood, or medium-density fiberboard do not contain lead in concentrations exceeding 100 ppm, any of the specified ASTM F963 elements in excess of specified concentrations, and any of the prohibited phthalates in concentrations greater than 0.1 percent.

The current cost of testing, on a per test basis, is reflective of the expected cost reductions that would result from the determinations. The cost of third party testing for lead can range from \$5 per component part using X-ray fluorescence spectrometry (XRF) to more than \$100 per component through Inductively Coupled Plasma (ICP) testing. The cost of third party testing for the ASTM F963 elements ranges from around \$60 in China, to up to around \$190 in the United States using ICP, and about \$40 per component part using high definition X-ray fluorescence spectrometry (HDXRF). The cost of third party testing for phthalates is approximately \$125 to \$350 per test, depending upon where the testing is conducted and any applicable discounts.²¹ Because one product might have several component parts that require testing, the cost to test a finished product for these regulated materials may be substantially higher. If small entities have lower production volumes than larger entities, these determinations would be expected to have a disproportionately beneficial impact on small entities, because the costs of the tests are distributed over fewer units. Additionally, small entities that need fewer third party tests may not qualify for discounts some laboratories may offer their larger customers.

Although the cost of third party testing is relatively high on a per-test or per-product basis, the total amount by which the third party testing costs would be reduced cannot be estimated reliably with the information available. For example, although the number of manufacturers of children's products, children's toys, and child care articles is available from the U.S. Bureau of the Census, the number of manufacturers that actually use particleboard, hardwood plywood, or medium-density fiberboard in their products is unknown. Likewise, the number of children's products, children's toys, and child care articles that contain these EWPs is also unknown.

²¹ The cost estimates of third party phthalate testing are based on information provided both by consumer product manufacturers and by testing laboratories.

Based on the number of domestic toy manufacturers classified as small businesses by the U.S. Bureau of the Census and evidence that the specified EWPs are used in children's products, children's toys, and child care articles, staff believes that a substantial number of small entities could be positively affected by this regulation. Therefore, staff recommends not certifying.

5 Conclusion and Recommendations

CPSC staff recommends that the Commission approve the draft final rule for publication in the *Federal Register*. Specifically, CPSC staff recommends that the Commission approve a final rule that is substantially the same as the proposal, and determine that the following three EWPs do not to contain lead, the ASTM F963 elements, or the specified phthalates in concentrations greater than their specified limits, and thus, are not required to be third party tested to assure compliance with sections 101, 106, and 108 of the CPSIA as follows:

5.1 Particleboard

CPSC staff recommends that the Commission determine that untreated and unfinished particleboard made from virgin wood or pre-consumer wood does not contain any of the following:

- Lead in concentrations greater than 100 ppm;
- Any of the ASTM F963 elements in concentrations greater than their specified solubility limits; or
- Any of the phthalates listed in 16 CFR part 1307 in concentrations greater than 0.1 percent.

5.2 Hardwood Plywood

CPSC staff recommends that the Commission determine that untreated and unfinished hardwood plywood made from virgin wood or pre-consumer wood waste does not contain any of the following:

- Lead in concentrations greater than 100 ppm; or
- Any of the ASTM F963 elements in concentrations greater than their specified solubility limits.

Additionally, CPSC staff recommends that the Commission determine that untreated and unfinished hardwood plywood made from virgin wood or pre-consumer wood waste, and not using polyvinyl acetate as an adhesive system, does not contain the following:

- Any of the phthalates listed in 16 CFR part 1307 in concentrations greater than 0.1 percent.

5.3 Medium-Density Fiberboard

CPSC staff recommends that the Commission determine that untreated and unfinished medium-density fiberboard made from virgin wood or pre-consumer wood waste does not contain any of the following:

- Lead in concentrations greater than 100 ppm;
- Any of the ASTM F963 elements in concentrations greater than their specified solubility limits; or
- Any of the phthalates listed in 16 CFR part 1307 in concentrations greater than 0.1 percent.

6 Recommended Effective Date

The proposed rule recommended a 30-day effective date for the final rule. Because the determinations for the three engineered wood products would reduce the testing burden on certifiers of children's products, children's toys, and child care articles, staff recommends that the Commission establish an effective date 30 days after the final rule's publication in the *Federal Register*.

Tab A: Final Regulatory Flexibility Analysis

Final Regulatory Flexibility Analysis for Determinations Regarding Third Party Testing of Engineered Wood Products



Directorate for Economic Analysis



UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
BETHESDA, MD 20814

Memorandum

Date: April 30, 2018

TO: Jacqueline Campbell, Project Manager, Directorate for Engineering Sciences, Office of Hazard Identification and Reduction

THROUGH: Gregory B. Rodgers, Ph.D., Associate Executive Director
Robert L. Franklin, Senior Staff Coordinator
Directorate for Economic Analysis

FROM: Charu S. Krishnan
Directorate for Economic Analysis

SUBJECT: **Recommendation for Determinations Regarding Third Party Testing of Engineered Wood Products for Lead, ASTM F963 Elements, and Phthalates; Impact on Small Entities**

Background

The Commission is considering a draft final rule that would establish determinations that three engineered wood products (EWP) do not contain: (1) lead in concentrations exceeding 100 ppm, (2) any of the specified ASTM F963 elements (Sb, As, Ba, Cd, Cr, Pb, Hg, Se)¹ in excess of specified concentrations, and (3) any of the specified phthalates (DEHP, DBP, BBP, DINP, DIBP, DPENP, DHEXP, and DCHP)² in concentrations greater than 0.1 percent (1000 ppm). If the Commission makes these determinations, manufacturers of children's products, children's toys, and child care articles will not have to obtain passing third party test results for accessible component parts made of these engineered woods in order to certify that the component parts do not contain lead, the ASTM F963 elements, or the specified phthalates in excess of allowable levels.

The determinations for the three engineered woods include particleboard, hardwood plywood, and medium-density fiberboard. CPSC staff has concluded that there is a high degree of assurance that these three engineered woods in an untreated and unfinished state made from

¹ Sb: Antimony, As: Arsenic, Ba: Barium, Cd: Cadmium, Cr: Chromium, Pb: Lead, Hg: Mercury, Se: Selenium

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

virgin wood or pre-consumer wood waste³ will not contain lead, the ASTM F963 elements, and the specified phthalates in excess of allowable levels (with the exception of PVAc in hardwood plywood). This conclusion is based on an extensive literature review seeking information on the raw materials used in the manufacture of the specified engineered woods, the worldwide manufacturing practices of the engineered woods, the typical applications, and the potential for exposure to lead, the ASTM F963 elements, and the specified phthalates through the use of recycled materials or due to contamination. Therefore, accessible component parts made from such engineered wood in children's products, children's toys, and child care articles subject to sections 101 (regarding lead content of children's products), 106 (mandating the ASTM F963 toy standard) and 108 (regarding the use specific phthalates in children's toys and child care articles) of the Consumer Product Safety Improvement Act (CPSIA) would not require third party testing for certification purposes. The draft final rule is part of an effort by CPSC to reduce the cost of third party testing requirements that are consistent with assuring compliance with the applicable children's product safety rules.

The Regulatory Flexibility Act (RFA) requires that agencies review rules for their potential economic impact on small entities, including small businesses. Unless the "...agency certifies that the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities," section 604 of the RFA requires agencies to prepare a final regulatory flexibility analysis, describing the impact of the rule on small entities. The final regulatory flexibility analysis is to contain:

- 1) a statement of the need for, and objectives of, the rule;
- 2) a statement of the significant issues raised by the public comments in response to the initial regulatory flexibility analysis, a statement of the assessment of the agency of such issues, and a statement of any changes made in the proposed rule as a result of such comments;
- 3) the response of the agency to any comments filed by the Chief Counsel for Advocacy of the Small Business Administration in response to the proposed rule, and a detailed statement of any change made to the proposed rule in the final rule as a result of the comments;
- 4) a description of and an estimate of the number of small entities to which the rule will apply or an explanation of why no such estimate is available;

³ An untreated EWP does not have any additional finishes applied at manufacture such as flame retardants or rot resistant finishes. The TERA Task 14 report explains that an unfinished EWP does not have any surface treatments applied at manufacture, such as factory-applied coatings. The term *virgin wood* describes wood logs, fibers, chips, or layers that have not been recycled from a previous use. The term *pre-consumer wood waste* describes wood logs, fibers, chips, or layers that have been recycled from an industrial process before being made available for consumer use. Examples of this type of waste include trimmings from EWP panel manufacturing, sawdust from cutting logs, or remaining wood pieces from sawing a log into framing lumber. The term *post-industrial wood waste* may also be used.

- 5) a description of the projected reporting, recordkeeping, and other compliance requirements of the rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for the preparation of the report or record; and
- 6) a description of the steps the agency has taken to minimize the significant economic impact on small entities consistent with the stated objectives of applicable statutes, including a statement of the factual, policy, and legal reasons for selecting the alternative adopted in the final rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected.

According to the Small Business Administration's Office of Advocacy, "Congress considered the term 'significant' to be neutral with respect to whether the impact is beneficial or harmful to small businesses. Therefore, agencies need to consider both beneficial and adverse impacts in an analysis."⁴ The SBA guidance may seem counterintuitive in that burden reduction, although beneficial, could still be found to have a significant economic impact on a substantial number of small businesses. However, the SBA guidance states in a footnote, "...an agency cannot certify a proposed rule if the economic impact will be significant but positive."⁵ Therefore, although the draft final rule would have a positive impact on small entities, staff has prepared a final regulatory flexibility analysis, which is summarized below.

Objectives and Legal Basis of the Draft Final rule

The objective of the draft final rule is to reduce the burden of third party testing on manufacturers of children's products, children's toys, and child care articles consistent with assuring compliance with CPSC requirements. The legal basis is section 2 of Public Law 112-28.

Significant Issues Raised by Public Comments or by the Chief Counsel for Advocacy of the Small Business Administration

One commenter stated that the rule appeared to limit the flexibility provided in the Commission's 2009 Statement of Policy: *Testing of Component Parts With Respect To Section 108 of the Consumer Product Safety Improvement Act* and stated that this could actually significantly increase the costs for some companies.⁶ We believe that the EWP determinations are consistent with the 2009 Statement of Policy. The 2009 Statement of Policy document did not create determinations for the listed materials that would exclude those materials from required third party testing. The prohibited phthalates are commonly used in some plastics,

⁴ SBA Office of Advocacy "A Guide for Government Agencies: How to Comply with the Regulatory Flexibility Act", May 2012, p. 23

⁵ Id. p.20, footnote 66.

⁶ https://cpsc.gov/s3fs-public/pdfs/blk_media_componenttestingpolicy.pdf

inks, adhesives, paints, some rubberized materials, sealants, air fresheners, and scented products. However, the 2009 guidance did not state that the use of the prohibited phthalates was limited to only those listed materials. The draft final rule does not reverse the 2009 guidance. Rather, the draft final rule establishes a list of materials for which third party testing is not required for certifying compliance with section 108 of the CPSIA

However, to make it clear that only products that are subject to the lead, ASTM elements, and the specified phthalates are required to be third party tested, staff recommends changing § 1252.3(e) to emphasize that EWP materials in children's products, children's toys, and childcare articles other than the specified EWPs listed in the draft final rule, or that contain post-consumer wood waste, are required to be third party tested for lead content, the ASTM elements, and the specified phthalates, under section 14(a)(2) of the CPSA and 16 CFR part 1107, and sections 101, 106, or 108 of the CPSIA, *as applicable*. (emphasis added).

It is possible that some manufacturers might have misinterpreted the 2009 Statement of Policy and perhaps have conducted less third party testing than they should have. However, because this rule is not imposing additional restrictions as asserted by the commenter, it will not increase costs for companies that had properly been conducting third party testing as required by section 102 of the CPSIA and 16 CFR parts 1107 and 1109. Furthermore, the rule does remove requirements under prescribed circumstances.

Small Entities to Which the Draft Final Rule Would Apply

The final rule would apply to small entities that manufacture or import children's products, children's toys, and child care articles that contain particleboard, hardwood plywood, or medium-density fiberboard. Children's products are defined as consumer products designed or intended primarily for children 12 years of age or younger. Children's toys can include dolls, toys, and games. Child care articles are those which are designed or intended by the manufacturer for a child age three years old or younger to facilitate sleeping or feeding or to help the child in sucking or teething.

The following tables show the number of firms classified in the North American Industrial Classification System (NAICS) categories that are most likely to include manufacturers of children's products that could be subject to one or more children's product safety rules. However, not all firms in these categories produce children's products. Moreover, of those firms that do produce children's products, we do not know how many of the firms manufacture products with accessible particleboard, hardwood plywood, or medium-density fiberboard component parts. It is only these firms that would benefit from this burden reduction. These engineered woods can be found in products like children's furniture, toys, sports equipment, and musical instruments, so the NAICS codes for these categories were used to identify firms that could be affected by this rulemaking. The numbers of small firms are based on the SBA criteria for each NAICS code. In some cases, the size standards are not in line with the size categories provided by the Census Bureau. In these cases, we make approximate estimates of small businesses based on the size categories provided by the Census Bureau; these criteria are noted in the tables below.

Table 1 presents the number of domestic manufacturers by NAICS code that could manufacture children’s products, children’s toys, or child care articles that may contain accessible particleboard, hardwood plywood, or medium-density fiberboard component parts (the EWP’s of interest) and would be responsible for the certification of these products⁷. In total, there are 6,976 manufacturers that can be categorized as small. Of these, 3,611 have fewer than 5 employees. However, while some of these firms might use the EWP’s of interest in children’s products, and thus benefit from the proposed final rule, it is unlikely that they all do. Instead, some unknown subset of these firms might benefit.

Table 1. Number of Manufacturing Firms in Selected Product Categories, 2015						
NAICS Code	Description	SBA Size Standard (Number of Employees)	Criteria Used (Number of Employees)	Total Number of Firms	Number of Small Firms	Firms with < 5 employees
33712	Household and Institutional Furniture Manufacturing	<500 to <1000	<500	4,241	4,174	2,075
33992	Sporting and Athletic Goods Manufacturing	<750	<500	1,652	1,629	828
33993	Doll, Toy, and Game Manufacturing	<500	<500	566	562	347
339992	Musical Instrument Manufacturing	<1000	<500	617	611	361
	Total Manufacturers			7,076	6,976	3,611

Source: U.S. Department of Commerce, Bureau of the Census, 2015 SUSB Annual Data Tables by Establishment Industry, *Number of Firms, Number of Establishments, Employment, and Annual Payroll by Enterprise Employment Size for the United States, All Industries: 2015*. Release date: 09/29/2017. (available at: https://www2.census.gov/programs-surveys/susb/tables/2015/us_6digitnaics_2015.xlsx.)

Table 2 presents the number of domestic wholesalers by NAICS code that could distribute children’s products, children’s toys, or child care articles that may contain the

⁷ See [16 CFR § 1110.7](#).

accessible EWPs of interest. In total, there are 26,124 wholesalers that can be categorized as small. Of these, 15,951 have less than 5 employees. Wholesalers who obtain their products strictly from domestic manufacturers or from other wholesalers would not be impacted by the rule because the manufacturer or importer would be responsible for certifying the products.⁸ Although importers are responsible for the certification of the children’s products that they import, they may rely upon third party testing performed by their foreign suppliers for purposes of certification. The number of small wholesalers that import children’s products, children’s toys, or childcare articles as opposed to obtaining their product from domestic sources is not known. Also unknown is the number of small importers that must obtain or pay for the third party testing of their products and the number of these firms that use EWP.

Table 2. Number of Wholesalers in Selected Product Categories, 2015						
NAICS Code	Description	SBA Size Standard (Number of Employees)	Criteria Used (Number of Employees)	Total Number of Firms	Number of Small Firms	Firms with < 5 employees
4232	Furniture and Home Furnishing Merchant Wholesalers	<100	<100	10,353	9,947	5,399
42391	Sporting and Recreational Goods and Supplies Merchant Wholesalers	<100	<100	5,277	5,109	3,274
42392	Toy and Hobby Goods and Supplies Merchant Wholesalers	<150	<100	2,009	1,937	1,165
42399	Other Miscellaneous Durable Goods Merchant Wholesalers	<100	<100	9,356	9,131	6,113
	Total Wholesalers			26,995	26,124	15,951

Source: U.S. Department of Commerce, Bureau of the Census, 2015 SUSB Annual Data Tables by Establishment Industry, *Number of Firms, Number of Establishments, Employment, and Annual Payroll by Enterprise Employment Size for the United States, All Industries: 2015*. Release date: 09/29/2017. (available at: https://www2.census.gov/programs-surveys/susb/tables/2015/us_6digitnaics_2015.xlsx.)

Table 3 presents the number of domestic retailers by NAICS code that could sell children’s products, children’s toys, or child care articles that may contain the accessible EWPs of

⁸ See [16 CFR § 1110.7](#).

interest. In total, there are 48,405 retailers that can be categorized as small. Of these, 27,506 have less than 5 employees. Although there are almost 50,000 retailers in the NAICS categories summarized in Table 3, the only retailers that would be directly impacted by the final rule are those that import children’s products themselves. Retailers that obtain all of their products from domestic manufacturers or wholesalers will not be directly impacted by the rule because the manufacturers or wholesalers would be responsible for certifying the products.⁹ Again, the actual number that sell products that use EWPs is unknown.

Table 3. Number of Retailers in Selected Product Categories, 2012

NAICS Code	Description	SBA Size Standard (Avg Annual Receipts, \$m)	Criteria Used for “Small” (Avg Annual Receipts, \$m)	Total Number of Firms	Number of Small Firms	Firms with Avg Annual Receipts < \$1m
442110	Furniture Stores	<\$20.5m	<\$25m	20,768	20,629	10,366
451110	Sporting Goods Stores	<\$15m	<\$10m	17,951	17,177	10,553
451120	Hobby, Toy, and Game Stores	<\$27.5m	<\$25m	7,147	7,142	4,124
451140	Musical Instrument and Supplies Stores	<\$11m	<\$10m	3,492	3,457	2,463
	Total Retailers			49,358	48,405	27,506

Source: U.S. Department of Commerce, Bureau of the Census, 2012 Economic Census of the United States, *Retail Trade: Subject Series- Estab & Firm Size: Summary Statistics by Employment Size of Establishments for the U.S.: 2012*. Release date: 02/05/2016. (available at: <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>.)

Note: 2012 is the most recent Economic Census data available. The Economic Census is only conducted every five years and the next data will not be available until the completion of the 2017 Economic Census.

Comprehensive estimates of the number of children’s products, children’s toys, and child care articles that contain component parts made from the specified engineered woods are not available. However, based on the number of domestic producers and sellers of these products, staff believes a substantial number of small entities could be impacted by this regulation. Given 81,505 small firms could be affected (6,976 manufacturers + 26,124 wholesalers + 48,405

⁹ See [16 CFR § 1110.7](#).

retailers) even if only a small proportion of these deal in products using the EWPs of interest, a substantial number would benefit from the reduced testing burden.

Reporting, Recordkeeping and Other Compliance Requirements and Impact on Small Businesses

CPSC staff recommends, with some exceptions (listed below), that the Commission determine that the following three EWPs be determined not to contain lead, the ASTM F963 elements, and the specified phthalates in concentrations greater than their specified limits. If the Commission makes this determination, manufacturers, importers, and private labelers of the affected products, would not require third party testing for certification to comply with the lead, ASTM F963 elements, or phthalate requirements. The staff recommendations for determinations for the specific engineered woods are as follows:

- Particleboard that is untreated and unfinished made from virgin wood or pre-consumer wood waste, should be determined not to contain:
 - Lead in concentrations greater than 100 ppm;
 - Any of the ASTM F963 elements in concentrations greater than their specified solubility limits; or
 - Any of the specified phthalates in concentrations greater than 0.1 percent.
- Hardwood plywood that is untreated and unfinished made from virgin wood or pre-consumer wood waste, should be determined not to contain:
 - Lead in concentrations greater than 100 ppm; or
 - Any of the ASTM F963 elements in concentrations greater than their specified solubility limits.
 - Any of the specified phthalates in concentrations greater than 0.1 percent if the hardwood plywood does not use polyvinyl acetate as an adhesive system.
- Medium-density fiberboard that is untreated and unfinished made from virgin wood or pre-consumer wood waste, should be determined not to contain:
 - Lead in concentrations greater than 100 ppm;
 - Any of the ASTM F963 elements in concentrations greater than their specified solubility limits; or
 - Any of the specified phthalates in concentrations greater than 0.1 percent.

The final rule would not impose any new reporting, recordkeeping, or other compliance requirements on small entities. In fact, because the final rule would eliminate a testing requirement, there would be a small reduction in some of the recordkeeping burden under 16 CFR parts 1107 and 1109 because manufacturers would no longer have to maintain records of third party tests for the component parts manufactured from these engineered woods for lead, the ASTM F963 elements, or the specified phthalates.

The impact of the determinations on small businesses would be to reduce the burden of third party testing for firms and are expected to be entirely beneficial. The current cost of testing, on a per test basis, is reflective of the expected cost reductions that would result the

determinations, and are as follows.

The cost of lead testing ranges from \$50 to more than \$100 per component through Inductively Coupled Plasma (ICP) testing. If one uses X-ray fluorescence (XRF) spectrometry, which is an acceptable method for certification of third-party testing for lead content, the costs can be greatly reduced to approximately \$5 per component. If a component part made with one of the specified engineered woods is painted, the component part would be exempt from the third party testing requirement, but the paint would still require lead testing.

Based on published invoices and price lists, the cost of a third party test for the ASTM F963 elements ranges from around \$60 in China, up to around \$190 in the United States using ICP. This cost can be greatly reduced with the use of high definition X-ray fluorescence spectrometry (HDXRF), which is an acceptable method for certification of third-party testing for the presence of the ASTM elements. The cost can be reduced to about \$40 per component part. It should be noted that lead is one of the ASTM elements, so this testing would also cover the cost of lead testing for component parts.

The cost of phthalate testing is relatively high: between about \$125 and \$350 per component, depending upon where the testing is conducted and any discounts that are applicable. Because one product might have multiple components that require testing, the cost of testing a single product for phthalates could exceed \$1,000 in some cases.

Moreover, more than one sample might have to be tested to provide a high degree of assurance of compliance with the requirements for testing. To the extent that small businesses have lower production or sales volumes than larger businesses, these determinations would be expected to have a disproportionately beneficial impact on small businesses. This beneficial impact is due to spreading the costs of the testing over fewer units.¹⁰ Additionally, small entities that need fewer third party tests may not qualify for discounts some laboratories may offer their larger customers.

Based on staff's discussion above, the burden reduction from this determination rule could potentially result in significant benefits for a substantial number of manufacturers, importers, or retailers of the relevant product categories.

¹⁰ The possible benefits associated with the determinations might be somewhat lower to the extent firms were already taking advantage of component part testing as allowed by 16 CFR part 1109.

Steps the Agency Has Taken to Minimize a Negative Impact on Small Entities

Under section 604 of the Regulatory Flexibility Act, a final regulatory flexibility analysis should include a “statement of the factual, policy, and legal reasons for selecting the alternative adopted in the draft Final rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected.” The draft final rule is part of an ongoing effort of the CPSC to reduce third party testing costs consistent with assuring compliance with all applicable consumer product safety rules. Therefore, few alternatives, other than expanding the list of engineered woods for which determinations could be made were considered. Other options would only limit the burden reductions achieved. CPSC staff identified these three types of EWPs for study based on stakeholder feedback, the likelihood of being used in products subject to children’s product, children’s toy, or child care article certification requirements, and available resources, and is not aware of and did not receive comments on other engineered woods for which the information base was sufficient to establish that burden could be reduced safely.