The contents of this document will be discussed at a Commission Briefing scheduled for April 30, 2014.

UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
4330 EAST WEST HIGHWAY
BETHESDA, MD 20814

This document has been electronically approved and signed.

DATE: April 22, 2014

BALLOT VOTE SHEET

TO: The Commission
Todd A. Stevenson, Secretary

THROUGH: Stephanie Tsacoumis, General Counsel
Elliot F. Kaye, Executive Director

FROM: Patricia M. Pollitzer, Assistant General Counsel
David M. DiMatteo, Attorney, OGC

SUBJECT: Proposed Rule: Safety Standard for Frame Child Carriers

Ballot Vote Due: May 9 **, 2014**

The Office of the General Counsel is providing for Commission consideration the attached draft proposed rule for publication in the *Federal Register*. The proposed rule would establish a safety standard for frame child carriers pursuant to the Danny Keysar Child Product Safety Notification Act, section 104 of the Consumer Product Safety Improvement Act of 2008.

Please indicate your vote on the following options:

I. Approve publication of the attached document in the *Federal Register*, as drafted.

_____ _____
(Signature) (Date)

II. Approve publication of the attached document in the *Federal Register*, with changes. (Please specify.)

_____

_____

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_____ _____

(Signature) (Date)

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

_____ _____

(Signature) (Date)

IV. Take other action. (Please specify.)

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_____

_____

_____ _____

(Signature) (Date)

Attachment: Draft *Federal Register* Notice: Proposed Rule to Establish a Safety Standard for Frame Child Carriers

Billing Code 6355-01-P

CONSUMER PRODUCT SAFETY COMMISSION

16 CFR Parts 1112 and 1230

Docket No. CPSC-2014- [INSERT]

Safety Standard for Frame Child Carriers

AGENCY: Consumer Product Safety Commission.

ACTION: Notice of Proposed Rulemaking.

SUMMARY: The Danny Keysar Child Product Safety Notification Act, section 104 of the Consumer Product Safety Improvement Act of 2008 (CPSIA), requires the United States Consumer Product Safety Commission (Commission or CPSC) to promulgate consumer product safety standards for durable infant or toddler products. These standards are to be "substantially the same as" applicable voluntary standards or more stringent than the voluntary standard if the Commission concludes that more stringent requirements would further reduce the risk of injury associated with the product. The Commission is proposing a safety standard for frame child carriers in response to the direction under section 104(b) of the CPSIA. In addition, the Commission is proposing an amendment to 16 CFR part 1112 to include 16 CFR part 1230 in the list of Notice of Requirements (NOR) issued by the Commission.

DATES: Submit comments by [INSERT DATE 75 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**]**.

ADDRESSES: Comments related to the Paperwork Reduction Act aspects of the marking, labeling, and instructional literature of the proposed mandatory standard for frame child carriers should be directed to the Office of Information and Regulatory Affairs, OMB, Attn: CPSC Desk Officer, FAX: 202-395-6974, or e-mailed to oira_submission@omb.eop.gov.

Other comments, identified by Docket No. CPSC-2014-[**INSERT]**, may be submitted electronically or in writing:

Electronic Submissions: Submit electronic comments to the Federal eRulemaking Portal at: http://www.regulations.gov. Follow the instructions for submitting comments. The Commission does not accept comments submitted by electronic mail (e-mail), except through www.regulations.gov. The Commission encourages you to submit electronic comments by using the Federal eRulemaking Portal, as described above.

Written Submissions: Submit written submissions in the following way: Mail/Hand delivery/Courier, preferably in five copies, to: Office of the Secretary, Consumer Product Safety Commission, Room 820, 4330 East West Highway, Bethesda, MD 20814; telephone (301) 504-7923.

Instructions: All submissions received must include the agency name and docket number for this proposed rulemaking. All comments received may be posted without change, including any personal identifiers, contact information, or other personal information provided, to: http://www.regulations.gov. Do not submit confidential business information, trade secret information, or other sensitive or protected information that you do not want to be available to the public. If furnished at all, such information should be submitted in writing.

Docket: For access to the docket to read background documents or comments received, go to: http://www.regulations.gov, and insert the docket number, CPSC-2014-[INSERT], into the "Search" box, and follow the prompts.

FOR FURTHER INFORMATION CONTACT: Patricia L. Edwards, Project Manager, Directorate for Engineering Sciences, U.S. Consumer Product Safety Commission, 5 Research Place, Rockville, MD 20850; e-mail: *pedwards@cpsc.gov*.

SUPPLEMENTARY INFORMATION:

I. Background and Statutory Authority

The CPSIA was enacted on August 14, 2008. Section 104(b) of the CPSIA, part of the Danny Keysar Child Product Safety Notification Act, requires the Commission to: (1) examine and assess the effectiveness of voluntary consumer product safety standards for durable infant or toddler products, in consultation with representatives of consumer groups, juvenile product manufacturers, and independent child product engineers and experts; and (2) promulgate consumer product safety standards for durable infant and toddler products. Standards issued under section 104 are to be "substantially the same as" the applicable voluntary standards or more stringent than the voluntary standard if the Commission concludes that more stringent requirements would further reduce the risk of injury associated with the product.

The term "durable infant or toddler product" is defined in section 104(f)(1) of the CPSIA as "a durable product intended for use, or that may be reasonably expected to be used, by children under the age of 5 years." Section 104(f)(2)(I) of the CPSIA specifically identifies "infant carriers" as a durable infant or toddler product. The category of infant carriers covers a variety of products. The Commission has previously issued rules under section 104 for other infant carriers: specifically, for hand-held infant carriers and for soft infant and toddler carriers.

Pursuant to section 104(b)(1)(A), the Commission consulted with manufacturers, retailers, trade organizations, laboratories, consumer advocacy groups, consultants, and members of the public in the development of this proposed standard, largely through the ASTM process. The proposed rule is based on the voluntary standard developed by ASTM International (formerly the American Society for Testing and Materials), ASTM F2549-14, *Standard Consumer Safety Specification for Frame Child Carriers*, with one proposed modification to

specify requirements for the retention system performance test to provide clear pass/fail criteria for the carrier's restraints.

The ASTM standard is copyrighted, but the standard can be viewed as a read-only document during the comment period on this proposal only, at: [INSERT WEBLINK], by permission of ASTM.

The testing and certification requirements of section 14(a) of the Consumer Product Safety Act (CPSA) apply to the standards promulgated under section 104 of the CPSIA. Section 14(a)(3) of the CPSA requires the Commission to publish an NOR for the accreditation of third party conformity assessment bodies (test laboratories) to assess conformity with a children's product safety rule to which a children's product is subject. The proposed rule for frame child carriers, if issued as a final rule, will be a children's product safety rule that requires the issuance of an NOR. To meet the requirement that the Commission issue an NOR for the frame child carrier standard, the draft NPR proposes to amend 16 CFR part 1112.

II. Product Description

A. Definition of Frame Child Carrier

The scope section of ASTM F2549-14 defines a "frame child carrier" as "a product normally of sewn fabric construction on a tubular metal or other frame, which is designed to carry a child, in an upright position, on the back of the caregiver." The intended occupants of frame child carriers are children who are able to sit upright unassisted and weigh between 16 and 50 pounds. Frame child carriers are intended to be worn on the back and suspended from both shoulders of the caregiver's body in a forward- or rear-facing position. This type of carrier is often used for hiking and typically closely resembles hiking/mountaineering backpacks not intended to be used for transporting children.

B. Market Description

CPSC staff is aware of 15 firms currently supplying frame child carriers to the U.S. market, although additional firms may supply these products to U.S. consumers. Most of these firms specialize in the manufacture and/or distribution of one of two distinct types of products: (1) children's products, including durable nursery products; or (2) outdoor products, such as camping and hiking gear. The majority of the 15 known firms are domestic (including four manufacturers, seven importers, and one firm whose supply source could not be determined). The remaining three firms are foreign (including two manufacturers and one firm that imports products from foreign companies and distributes them from outside of the United States).

III. Incident Data

CPSC's Directorate for Epidemiology, Division of Hazard Analysis, is aware of a total of 47 frame child carrier-related incidents reported to CPSC that occurred between January 1, 2003 and October 27, 2013. Although there were no fatalities in the 47 incidents, 33 injuries were reported. Twenty-eight of the reports were received through the National Electronic Injury Surveillance System (NEISS). According to reports, the oldest child involved in an incident was 3 years old. For some incidents, the age of the child was not reported because no injury was involved, or the age of the child was unknown.

A. Fatalities

The incident data did not include any reports of fatalities.

B. Nonfatalities

Among the 33 reported nonfatal injuries, there were no hospitalizations. More than half of these incidents reported a serious injury, such as a closed-head injury[1] or a fracture of the leg or face. The other reported injuries ranged from head/facial lacerations, to dislocated arms and contusions and abrasions.

A majority of the injuries resulted from falls from the frame child carrier. Many of the falls occurred when children slipped out of the frame child carrier through leg openings; in other scenarios, children fell out when carriers, placed on elevated surfaces, toppled over, or when caregivers fell when carrying the infant in the carrier. For other falls, the specifics of the circumstances were not reported. Certain non-fall injuries occurred when the frame carrier tipped over due to instability when the carrier was placed upright on the floor, or from caregiver errors in placing/removing the child in or from the carrier. The remaining 14 incident reports indicated that no injury had occurred or else provided no information about any injury. However, many of the 14 incident reports described scenarios that CPSC staff believes presented the potential for a serious injury or even death.

C. Hazard Pattern Identification

CPSC staff reviewed all 47 reported incidents (33 with injuries and 14 without injuries) to identify hazard patterns associated with frame child carriers. Subsequently, CPSC staff considered each pattern when reviewing the adequacy of ASTM F2549-14.

Staff grouped the incidents into three broad categories of hazard patterns (product-related, non-product-related, and unknown); staff then further classified the incidents within each category. In order of frequency of incident reports, the hazard patterns are described below:

[1] According to staff from the Directorate for Health Sciences, a closed head injury is a head injury where the skull remained intact but it can range in severity from a minor bump to a severe life-threatening traumatic brain injury.

1. ***Product Related**:* Twenty-nine of the 47 incidents, including 15 of the 33 injuries, were attributed to product-related issues. The specific product-related issues were:

   - *Structural integrity* of the frame child carrier was identified as a problem in 11 (23 percent) of the 47 incidents. Reported problems included:
     - Failure of caregiver's attachment components;
     - Poor quality stitching on straps;
     - Detachment of the cloth component from the frame; and
     - Loose screws or breakage of the frame, which resulted in an abrasion injury.

     A review of the data shows that each of the 11 incidents involved carriers manufactured before the initial publication of ASTM F2549 in 2006.
   - *Stability* problems of the frame child carrier were reported in nine incidents (19 percent); all nine incidents resulted in an injury to the head/face of the child. In some cases, when the carrier was placed on an elevated surface, the infant fell out of the carrier as the carrier toppled over. In other cases, when the carrier was at ground level, the infant fell along with the carrier when the carrier tipped over. All nine incidents were from NEISS reports; and thus, information about the carrier and details about the incident are unknown. Three of the nine incidents occurred before 2006, and thus, involved carriers that were manufactured before the initial publication of ASTM F2549.
   - *Leg opening* problems were reported in seven incidents (15 percent). In these cases, the leg holes were large enough to allow the child to slip out or almost

slip out of the carrier. In a few of these incidents, the consumer also expressed concern about the potential risk of strangulation if the child were to get trapped in the process of slipping out through the opening. This category includes four injuries to the head and/or face due to a fall. Three of the seven incidents involved carriers manufactured after ASTM F2549 was first published.

- *Restraint* inadequacy was reported in two incidents (4 percent); one was a NEISS incident that occurred in 2005, and the other incident occurred in 2009. In both cases, the caregiver bent over, and the restraints somehow failed to prevent the child from sliding out from the top. One injury is included in this category.

2. ***Non-Product-Related****:* Nine incidents (19 percent) involving nine injuries were not attributable to any product-related failure or defect. Five of the incidents resulted in arm dislocation injuries during the placement/removal of the child in or out of the frame child carrier. The remaining four incidents resulted in injuries (leg fracture, closed-head injury, and facial laceration, for example) when the caregiver slipped or tripped and fell, with the child in the carrier.
3. ***Unknown****:* There were nine NEISS incidents (19 percent) reported that provided very few scenario-specific details. Staff could not determine whether there was any product involvement or any hazardous external circumstances. All of the incidents resulted in injuries to the head and/or face due to falls.

D. Product Recalls

There have been two product recalls involving frame child carriers from January 1, 2003 to October 27, 2013. One recall involved 4,000 units, and the other recall involved 40 units.

IV. Other Relevant Standards

A. International Standards

CPSC is aware of one international standard, EN 13209-1:2004, *European/British Standard for Child use and care articles- Baby carriers- Safety requirements and test methods- Part 1: Framed back carriers*, which addresses frame child carriers in a fashion similar to ASTM F2549-14. Although there are differences between the two standards, CPSC believes that the ASTM standard is more stringent in most areas and addresses most of the hazard patterns seen in the CPSC incident data. The exception is the test requirement for the occupant retention system (known as the child-restraint system in the EN standard). The EN standard has clear pass/fail requirements for restraint performance, and the ASTM standard does not. Both standards include a test procedure that rotates the carrier a full 360 degrees when occupied by a surrogate dummy. In addition, both standards include procedures that apply forces to the retention straps, attachment points, and the dummy legs. The EN standard requirement states that the dummy shall not fall completely out of the restraint system and that the attachment of the restraint system shall not break, deform, work loose, or become torn/displaced. Additionally, the EN standard requires that fasteners shall not be released or have suffered damage that impairs their operation and function. The ASTM standard does not contain any of this language, and therefore, as discussed in section IV of the preamble, and as reflected in the language of the proposed § 1230.2(b)(1)(i), the Commission's proposed standard includes a modification to ASTM F2549 that would specify test criteria similar to those provided in the EN standard.

B. Voluntary Standard – ASTM F2549

1. History of ASTM F2549

The voluntary standard for frame child carriers was first approved and published in December 2006, as ASTM F2549-06, *Standard Consumer Safety Specification for Frame Child Carriers*. ASTM has revised the voluntary standard five times since then. The current version, ASTM F2549-14, was approved on January 1, 2014.

The original version, ASTM F2549-06, contained requirements to address the following issues:

- Sharp points
- Small parts
- Lead in paint
- Wood parts
- Scissoring, shearing, pinching
- Openings
- Exposed coil springs
- Locking and latching (for carriers that fold for storage, this requirement helps prevent unintentional folding)
- Unintentional folding (for carriers with kick stands that can stand freely, this requirement helps prevent the unintentional folding of the kick stand)
- Labeling
- Protective components
- Leg openings (to help prevent smaller occupants from falling out of the carrier through a single leg opening)

- Dynamic strength (tests the frame, fasteners, and seams/stitching under dynamic conditions to help prevent breakage or separation)
- Static load (ensures the carrier can hold three times the maximum recommended weight)
- Stability (for carriers that can stand freely, this helps prevent an occupied carrier from tipping over during normal use)
- Restraints (requires that all carriers have a restraint system and also provides a method for testing the restraints)
- Handle integrity (helps prevent the handle from breaking or separating when it is pulled with three times the maximum recommended weight)

ASTM F2549-08 (approved November 1, 2008) addressed the following issues:

- New flammability requirements for carriers
- New toy accessory requirements
- A revised unintentional folding test procedure, adding a weight load to mimic an occupant in the carrier.

ASTM F2549-09 (approved April 1, 2009) addressed the following issue:

- A revised dynamic strength test procedure because some carrier designs could not be tested using the old method.

ASTM F2549-09a (approved July 1, 2009) addressed the following issue:

- Change of the reference to the flammable solids requirement [16 CFR § 1500.3 (C)(6)(vi)] to correct an editorial error.

ASTM F2549-13 (approved November 1, 2013) addressed the following issues:

- A revised leg opening test procedure to reflect the use of the product better and explain what is happening in incident reports where children were slipping through a leg opening.
- A revised scope to include carriers rated for weights up to 50 pounds, which reflects the existing market for frame child carriers.

ASTM F2549-14 (approved January 1, 2014) addressed the following issue:

- A revised dynamic strength test to accommodate the greater weight rating (which was changed in version F2549-13).

2. Description of the Current Voluntary Standard - ASTM F2549-14

We believe that the current voluntary standard, ASTM F2549-14, sufficiently addresses the primary hazard patterns identified in the incident data. The following section discusses how each of the identified hazard patterns listed above is addressed by the current voluntary standard, ASTM F2549-14.

Structural integrity

ASTM F2549-14 uses a dynamic strength test and a static load test to assess the structural integrity of frame child carriers. We are aware of 11 reported incidents associated with the structural integrity of carriers that occurred before the first publication of ASTM F2549 in 2006. No incidents have been reported involving carriers manufactured since 2006. Thus, we believe that the combination of the dynamic strength and static load tests are adequate to address the issues associated with structural integrity.

Stability problems

A total of nine tip-over incidents were reported to CPSC, all through hospital emergency departments with very few scenario-specific details. CPSC staff's review of these incident

reports shows that three incidents involved carriers falling from elevated surfaces. The fall hazard and recommendations to mitigate this hazard, including not placing the carrier on counter tops, tables, or other elevated surfaces, are specified in a warning label requirement. The standard requires this warning label to be in a conspicuous location, visible to the caregiver each time the occupant is placed in the carrier, or when the caregiver places the product on his or her body.

In addition to the warning label requirement, the current voluntary standard includes a stability requirement and associated test procedure so that carriers that use a kickstand can remain in an upright position and are stable. When used correctly, a kickstand is designed to make the carrier stable so that the child can remain safely in the carrier just before and immediately after being carried by the caregiver. CPSC considers the stability test in the ASTM standard to be strong, and thus, we view the test as capable of discerning stable versus unstable carriers.

Based on the reasons outlined above, CPSC believes that ASTM F2549-14 adequately addresses stability issues through the use of both a warning label and a severe test requirement and associated test procedure. Thus, CPSC is not proposing any modifications to the ASTM standard to address this hazard pattern.

Leg opening problems

Leg opening problems were reported in seven incidents. In those cases, the carrier's leg holes were large enough to allow the child to slip out or almost slip out of the carrier. In a few of these incidents, the consumer also expressed concern about the potential risk of strangulation if the child slipped out through the opening. This category of incidents includes four head/face injuries from falls. A closer look revealed that four of the seven incidents occurred before the

standard was published. After initial publication of the standard in October 2006, no other leg opening incidents were reported until 2012. During a 6-month period between August 2012 and January 2013, three new leg opening incidents occurred.

Because of the new incidents, CPSC staff began working with ASTM in spring 2013, to update the leg opening test in ASTM F2549-09a. CPSC staff collected 10 carriers from a variety of suppliers, including the carrier involved in the three incidents, and staff tested each carrier to the leg opening requirement in ASTM F2549-09a. This test requires the carrier to be adjusted to the smallest leg opening; and then a 7-pound, 16.5-inch circumference test sphere[2] is placed in the carrier. Next, the carrier is tilted until the leg opening is horizontal, and then the carrier is held in that position for an additional minute. The test is repeated for the other leg opening. To pass the test, the sphere must not pass through either leg opening. CPSC staff found that all 10 carriers that were tested passed the requirement specified in ASTM F2549-09a.

CPSC staff, with the help of an ASTM task group, developed a more stringent test method that addressed the recent incidents. Instead of being adjusted to the smallest leg opening, carriers were fitted around a CAMI Infant Dummy Mark II (modeled after a 50th percentile 6-month old child). Four of the 10 carriers failed the modified leg-opening test. Notably, one of the carriers that failed the modified test was associated with the recent incident reports of children falling through leg openings.

In fall 2013, ASTM balloted a revised test procedure for leg openings that was developed by CPSC staff and the ASTM task group. This ballot item passed and was included in the revised standard, F2549-13. With the inclusion of this recently revised leg-opening test method,

[2] The test sphere size is based on the hip circumference of the smallest child likely to use the frame child carrier (3 to 5 months of age).

CPSC believes that the current voluntary standard is now adequate to address leg-opening hazards.

Although we believe the current standard adequately addresses the three hazard patterns described above, we will continue to monitor incidents and work with ASTM to make any necessary future changes.

Restraints

There were two reported incidents of restraint inadequacy. One was a NEISS report of a child falling out of a carrier when the caregiver leaned forward. This report contained no information regarding whether the restraints were used properly or how the restraints were involved. The other incident involved an 8-month-old child who stood up and almost fell out of the carrier while the caregiver was leaning forward. In the latter incident, we do not know what happened to the shoulder straps, but the report mentioned that the restraints might have been adjusted to be too loose. There was no report that the restraints broke in any way or became loose on their own.

V. Proposed Change to ASTM F2549-14 in the Proposed Mandatory Standard

ASTM juvenile product standards generally include sections that provide performance requirements and test methods. The performance requirement section spells out the pass/fail criteria associated with various requirements, while the test method section outlines the procedures for conducting the tests that need to be performed to determine whether the product meets the pass/fail criteria. Although some performance requirements do not have an associated test method, all test methods must have an associated performance (or general) requirement.

ASTM F2549-14 contains a performance requirement and a test procedure intended to address the hazard patterns associated with frame child carriers. However, CPSC concludes that

a change to the ASTM standard's performance requirement is needed to address restraint hazards adequately. The current performance requirement associated with the retention (restraint) system for frame child carriers states:

> 6.5 *Retention System:*
>
> 6.5.1 A retention system, including a shoulder restraint, shall be provided to secure the occupant in a seated position in any of the manufacturer's recommended use positions when tested in accordance with 7.5.
> 6.5.2 Before shipment, the manufacturer shall attach the retention system in such a manner that it will not detach in normal usage.
> 6.5.3 If the retention system includes a crotch restraint designed to work with a lap belt, it shall be designed such that its use is mandatory when the retention system is in use.

The retention system test procedure (section 7.5 of the standard) has three parts. Under the first part, a 45-lbf (pound-force) is applied to a single attachment point of the retention system. The second part of the test procedure requires a CAMI Infant Dummy Mark II to be placed in the carrier with the restraint system secured. Then, a 45-lbf is applied horizontally on the centerline of either leg of the dummy and repeated five times. For the third part of the test procedure, the carrier, containing the CAMI dummy, is lifted and rotated backwards 360° about the axis of the intersection of the seat back and bottom. The carrier is then rotated 360° around the axis of the side edge of the seat bottom.

CPSC believes that the purpose of the first two parts of the test procedure is to help ensure that the retention system and all buckles do not break, disengage, or separate at any seams. In addition, CPSC believes the purpose of the third part of the test procedure is to help ensure that the CAMI dummy does not fall out of the carrier. Therefore, CPSC concludes that the standard should express these goals as criteria to determine whether restraint systems comply with the performance requirements. However, these pass/fail criteria are not mentioned

explicitly in the performance requirement section of ASTM F2549-14. CPSC believes the frame carrier standard should include explicit pass/fail criteria. Without this change to the standard, a frame child carrier that is undergoing testing could fail the intended criteria but still be deemed to comply with the standard. Thus, correcting the standard prevents this from happening and, in effect, makes the standard more stringent. Staff consulted with representatives from two test laboratories and the ASTM subcommittee chairman about the lack of explicit pass/fail criteria in the ASTM standard's requirements for retention systems. Test laboratory personnel reported that they likely had not tested any frame child carriers that should have failed the purpose of the requirement; otherwise, the test laboratory personnel would have noted the lack of stated criteria previously.

Both the consulted test laboratory representatives and the ASTM subcommittee chairman agreed that the requirement should be revised so that the purpose of the restraint performance test is expressed clearly. With the help of the test laboratory personnel, staff developed a revised requirement using language found in similar requirements in the EN standard and the ASTM high chair and stroller standards. CPSC staff suggested language to explicitly require that buckles shall not break, disengage, or separate and that all fasteners cannot become damaged to the point that the restraint system will not function as a result of the test. In addition, staff suggested language that requires that the CAMI dummy not fall out of the carrier. In February 2014, staff wrote a letter to the ASTM subcommittee chairman,[3] outlining the suggested new language, and asking that the matter be discussed at the next ASTM meeting. During the April 9, 2014 ASTM subcommittee meeting, the letter (including the recommended language) was

[3] http://www.cpsc.gov//Global/Regulations-Laws-and-Standards/Voluntary-Standards/Voluntary-Standards-Reports/Frame%20Infant%20Carriers/LetterToASTMFrameCarriers21014.pdf.

shared with the subcommittee. The subcommittee agreed to ballot the proposed language for inclusion in the next revision of the standard. Accordingly, the proposed rule includes a modification to the ASTM standard's retention system performance requirement, as follows (strikeout represents removed text, underline represents added text):

> 6.5 *Retention System:*
>
> 6.5.1 A retention system, including a shoulder restraint, shall be provided to secure the occupant in a seated position in any of the manufacturer's recommended use positions ~~when tested in accordance with 7.5~~.
> 6.5.2 Before shipment, the manufacturer shall attach the retention system in such a manner that it will not detach in normal usage.
> 6.5.3 If the retention system includes a crotch restraint designed to work with a lap belt, it shall be designed such that its use is mandatory when the retention system is in use.
> 6.5.4 When tested in accordance with 7.5, the restraint system and its closing means (for example, a buckle) shall not break, disengage or separate at any seam and all fasteners shall not release or suffer damage that impairs the operation and function of the restraint system. At the end of the tests, the CAMI dummy shall not be released fully or fall out of the carrier.

Section 1230.2(b)(1) of the Commission's proposed standard for frame carriers would substitute this language for the existing section 6.5 in ASTM F2549-14.

VI. Amendment to 16 CFR part 1112 to Include NOR for Frame Child Carriers Standard

The CPSA establishes certain requirements for product certification and testing. Products subject to a consumer product safety rule under the CPSA, or to a similar rule, ban, standard or regulation under any other act enforced by the Commission, must be certified as complying with all applicable CPSC-enforced requirements. 15 U.S.C. 2063(a). Certification of children's products subject to a children's product safety rule must be based on testing conducted by a CPSC-accepted third party conformity assessment body. *Id*. 2063(a)(2). The Commission must

publish an NOR for the accreditation of third party conformity assessment bodies to assess conformity with a children's product safety rule to which a children's product is subject. *Id.* 2063(a)(3). Thus, the proposed rule for 16 CFR part 1230, *Safety Standard for Frame Child Carriers*, if issued as a final rule, would be a children's product safety rule that requires the issuance of an NOR.

The Commission published a final rule, *Requirements Pertaining to Third Party Conformity Assessment Bodies*, 78 FR 15836 (March 12, 2013), codified at 16 CFR part 1112 (referred to here as part 1112) and effective on June 10, 2013, that establishes requirements for accreditation of third party conformity assessment bodies to test for conformance with a children's product safety rule in accordance with Section 14(a)(2) of the CPSA. Part 1112 also codifies all of the NORs that have been issued previously by the Commission.

All new NORs for new children's product safety rules, such as the frame child carriers standard, require an amendment to part 1112. To meet the requirement that the Commission issue an NOR for the proposed frame child carriers standard, as part of this NPR, the Commission proposes to amend the existing rule that codifies the list of all NORs issued by the Commission to add frame child carriers to the list of children's product safety rules for which the CPSC has issued an NOR.

Test laboratories applying for acceptance as a CPSC-accepted third party conformity assessment body to test to the new standard for frame child carriers would be required to meet the third party conformity assessment body accreditation requirements in part 1112. When a laboratory meets the requirements as a CPSC-accepted third party conformity assessment body, the laboratory can apply to the CPSC to have 16 CFR part 1230, *Safety Standard for Frame*

Child Carriers, included in the laboratory's scope of accreditation of CPSC safety rules listed for the laboratory on the CPSC website at: www.cpsc.gov/labsearch.

VII. Effective Date

The Administrative Procedure Act (APA) generally requires that the effective date of a rule be at least 30 days after publication of the final rule. 5 U.S.C. 553(d). The Commission is proposing an effective date of six months after publication of the final rule in the *Federal Register*. Without evidence to the contrary, CPSC generally considers six months to be sufficient time for suppliers to come into compliance with a new standard, and a six-month effective date is typical for other CPSIA section 104 rules. Six months is also the period that the Juvenile Products Manufacturers Association (JPMA) typically allows for products in the JPMA certification program to transition to a new standard once that standard is published. The Commission does not expect the modification proposed for frame child carriers to cause any changes to existing products.

We also propose a six-month effective date for the amendment to part 1112.

We ask for comments on the proposed six-month effective date.

VIII. Regulatory Flexibility Act

A. Introduction

The Regulatory Flexibility Act (RFA) requires that agencies review a proposed rule for the rule's potential economic impact on small entities, including small businesses. Section 603 of the RFA generally requires that agencies prepare an initial regulatory flexibility analysis (IRFA) and make the analysis available to the public for comment when the agency publishes a notice of proposed rulemaking. The IRFA must describe the impact of the proposed rule on

small entities and identify any alternatives that may reduce the impact. Specifically, the IRFA must contain:

- a description of, and where feasible, an estimate of the number of small entities to which the proposed rule will apply;
- a description of the reasons why action by the agency is being considered;
- a succinct statement of the objectives of, and legal basis for, the proposed rule;
- a description of the projected reporting, recordkeeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities subject to the requirements and the types of professional skills necessary for the preparation of reports or records; and
- an identification, to the extent possible, of all relevant federal rules which may duplicate, overlap, or conflict with the proposed rule.

B. Market Description

CPSC is aware of 15 firms currently supplying frame child carriers to the U.S. market, although additional firms may supply these products to U.S. customers. Most of these firms specialize in the manufacture and/or distribution of one of two distinct types of products: (1) children's products, including durable nursery products; or (2) outdoor products, such as camping and hiking gear. The majority of the 15 known firms are domestic (including four manufacturers, seven importers, and one firm whose supply source could not be determined). The remaining three firms are foreign (including two manufacturers and one firm that imports

products from foreign companies and distributes the products from outside of the United States).[4]

According to a 2005 survey conducted by the American Baby Group (*2006 Baby Products Tracking Study*),[5] 32 percent of new mothers owned a frame child carrier. Approximately 32 percent of those carriers were handed down or purchased secondhand,[6] and about 68 percent were new when acquired. This information suggests annual sales of around 870,000 frame child carriers (.32 x .68 x 4 million births per year),[7] typically costing from $100 to around $300.

C. Reason for Agency Action and Legal Basis for the Proposed Rule

The Danny Keysar Child Product Safety Notification Act, section 104 of the CPSIA, requires the CPSC to promulgate a mandatory standard that is substantially the same as, or more stringent than, the voluntary standard for a durable infant or toddler product. The proposed rule implements that congressional direction.

D. Other Federal Rules

There are two federal rules that would interact with the frame child carrier mandatory standard: (1) Testing and Labeling Pertaining to Product Certification (16 CFR part 1107); and (2) Requirements Pertaining to Third Party Conformity Assessment Bodies (16 CFR part 1112).

[4] Staff made these determinations using information from Dun & Bradstreet and ReferenceUSAGov, as well as firm websites.

[5] The data collected for the *Baby Products Tracking Study* do not represent an unbiased statistical sample. The sample of 3,600 new and expectant mothers is drawn from American Baby magazine's mailing lists. Additionally, because the most recent survey information is from 2005, the data may not reflect the current market.

[6] The data on secondhand products for new mothers were not available. Instead, data for new mothers and expectant mothers were combined and broken into data for first-time mothers and data for experienced mothers. Data for first-time mothers and experienced mothers have been averaged to calculate the approximate percentage of products that were handed down or purchased secondhand.

[7] U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (CDC), National Center for Health Statistics, National Vital Statistics System, "Births: Final Data for 2010," *National Vital Statistics Reports* Volume 61, Number 1 (August 28, 2012): Table 1. The number of births in 2010 is rounded from 3,999,386.

The testing and labeling rule (16 CFR part 1107) requires that manufacturers of children's products subject to children's product safety rules certify, based on third party testing, that the manufacturers' children's products comply with all applicable children's product safety rules. If a final children's product safety rule for frame child carriers is adopted by the Commission, frame child carriers will be subject to the third party testing requirements, including record keeping, when such a final frame child carrier rule becomes effective.

In addition, the 16 CFR part 1107 rule requires the third party testing of children's products to be conducted by CPSC-accepted test laboratories. Section 14(a)(3) of the CPSA requires the Commission to publish an NOR for the accreditation of third party conformity assessment bodies to test for conformance with each children's product safety rule. Existing NORs that have been issued by the Commission are listed in 16 CFR part 1112. Consequently, the Commission proposes to amend 16 CFR part 1112 to add the frame child carrier rule to the list of rules for which the Commission has issued an NOR.

E. Impact of Proposed 16 CFR Part 1230 on Small Businesses

We are aware of approximately 15 firms currently marketing frame child carriers in the United States, 12 of which are domestic firms. Under U.S. Small Business Administration (SBA) guidelines, a manufacturer of frame child carriers is categorized as small if the firm has 500 or fewer employees, and importers and wholesalers are considered small if they have 100 or fewer employees. We limited our analysis to domestic firms because SBA guidelines and definitions pertain to U.S.-based entities. Based on these guidelines, about nine of the identified 15 firms are small—three domestic manufacturers, five domestic importers, and one domestic firm with an unknown supply source. There may be additional unknown small domestic frame child carrier suppliers operating in the U.S. market.

Prior to the preparation of a regulatory flexibility analysis, staff conducts a screening analysis in order to determine whether a regulatory flexibility analysis or a certification statement of no significant impact on a substantial number of small entities is appropriate for a proposed rule. The SBA gives considerable flexibility in defining the threshold for "no significant economic impact." However, staff typically uses 1 percent of gross revenue as a threshold; unless the impact is expected to fall below the 1 percent threshold for the small businesses evaluated, staff prepares a regulatory flexibility analysis. Because staff was unable to demonstrate that the proposed rule would impose an economic impact less than 1 percent of gross revenue for the affected firms, staff conducted an IRFA.

Small Manufacturers. Of the three small domestic manufacturers, the proposed rule is likely to have little or no impact on the two firms whose frame child carriers comply with the ASTM voluntary standard currently in effect for JPMA testing and certification purposes (F2549-09a). We anticipate that these firms will remain compliant with the voluntary standard as the standard changes because these firms follow, and in at least one case, participate actively in the voluntary standard development process. Therefore, compliance with the evolving voluntary standard is part of an established business practice. ASTM F2549-14, the version of the voluntary standard upon which the proposed rule is based, will be in effect already for JPMA testing and certification purposes, before a mandatory standard becomes final, should one be issued by the Commission; and these firms are likely to be in compliance based on their history. Because the proposed modification to the retention system requirement consists of specifying pass/fail criteria already used by test laboratories, we do not expect the modification to have an impact on firms.

The remaining small manufacturer would experience some economic impacts of unknown size. Based on discussions with a company representative, this firm does not know whether its products comply with the voluntary standard, having been previously unaware of the standard's existence. However, the firm indicated that it might elect to discontinue production of its frame child carriers, even if the firm's frame child carriers prove to be compliant with the proposed CPSC standard. The company believes that the burden associated with the testing and record-keeping requirements triggered by a mandatory frame child carrier standard might exceed the value of continuing production. Although this firm produces many other products, which should lessen the economic impact, and indicated that frame child carriers do not represent a large portion of the firm's product line, the firm did not convey the precise percentage of revenues that frame child carriers constitutes for this firm and thus, staff could not rule out a significant economic impact on this firm.

Under section 14 of the CPSA, should the Commission adopt the new frame child carriers requirements as a final rule, once the requirements become effective, all manufacturers will be subject to the additional costs associated with the third party testing and certification requirements under the testing and labeling rule (16 CFR part 1107). Third party testing will include any physical and mechanical test requirements specified in the final frame child carriers rule that may be issued; lead and phthalates testing is already required. Third party testing costs are in addition to the direct costs of meeting the frame child carriers standard.

Several firms were contacted regarding testing costs and one estimated that chemical and structural testing of one unit of a frame child carrier costs around $1,300. No other firms were willing or able to supply the requested testing cost information. Estimates provided by suppliers for other section 104 rulemakings indicate that around 40 percent to 50 percent of testing costs

can be attributed to structural requirements, with the remaining 50 percent to 60 percent resulting from chemical testing (e.g., lead and phthalates). Therefore, staff estimates that testing to the ASTM voluntary standard could cost about $520 to $650 per sample tested ($1,300 x .4 to $1,300 x .5). These costs are consistent with testing cost estimates for products with standards of similar complexity.

Staff's review of the frame child carrier market shows that on average, each small domestic manufacturer supplies three different models of frame child carriers to the U.S. market annually. Therefore, if third party testing were conducted every year, third party testing costs for each manufacturer would be about $1,560 to $1,950 annually, if only one sample were tested for each model. Based on an examination of each small domestic manufacturer's revenues from recent Dun & Bradstreet or Reference USAGov reports, the impact of third party testing to ASTM F2549-14 is unlikely to be economically significant for the three small domestic manufacturers (i.e., testing costs less than one percent of gross revenue). Although the testing and labeling rule (16 CFR part 1107) does not set forth a specific number of samples firms will need to test to meet the "high degree of assurance" criterion, more than 100 units per model would be required to make testing costs economically significant for the two firms with available revenue data. As described above, the third manufacturer has already indicated that the firm may exit the market because of the testing costs, even if the company's frame carriers meet the requirements of the voluntary standard.

Small Importers. As noted above, there are five small importers of frame child carriers, with three of them currently importing compliant carriers. In the absence of a mandatory regulation, these three small importers of frame child carriers would likely remain in compliance with new versions of the standard. Given that the three small importers have developed a pattern

of compliance with the ASTM voluntary standard as the standard evolves and that the proposed rule does not differ substantively from the voluntary standard, ASTM F2549-14, as applied by test laboratories, the three small importers of compliant products would likely experience little or no direct costs under the proposed rule.

Whether there is a significant economic impact on the two small importers with noncompliant frame child carriers will depend upon the extent of the changes required to come into compliance and the response of their supplying firms. Because no small importers with noncompliant frame child carriers responded to requests for information, staff cannot estimate the precise economic impact on these firms.

However, in general, if an importer's supplying firm supplies products that comply with the new standard, the importer could elect to continue importing the frame child carriers. Any increase in production costs experienced by the importer's suppliers as a result of changes made to meet the mandatory standard may be passed on to the importer. If an importer is unwilling or unable to accept the increased costs, or if the importer's supplier decides not to comply with the mandatory standard, at least three alternative courses of action are available. First, the importer could find another supplier of frame child carriers. This could result in increased costs as well, depending, for example, on whether the alternative supplier must modify its carriers to comply with the mandatory standard. Second, the importer could import a different product in place of frame child carriers. This alternative would help mitigate the economic impact of the mandatory standard on these firms. Finally, the importer could stop importing frame child carriers and make no other changes to its product line. As with manufacturers, all importers are subject to third party testing and certification requirements. Consequently, if the Commission adopts a final mandatory standard for frame child carriers, importers will be subject to costs similar to

those for manufacturers, if the importer's supplying foreign firm(s) does not perform third party testing. It does not appear likely that these costs would have a significant economic impact on the two small domestic importers for which revenue information is available, unless around 20 units per model were required to be tested to provide a "high degree of assurance" (i.e., at 20 units tested per model, testing costs will exceed one percent of gross revenue for each of these firms, even if testing costs are estimated at the lowest level of $520). The impact on the other three small importers is unknown.

Alternatives. Under the Danny Keysar Child Product Safety Notification Act, one alternative that generally reduces the impact on small entities is to make the voluntary standard mandatory with no modifications. However, in the case of frame child carriers, no difference in impact would be expected because the CPSC proposed modification articulates the current standard practice of test laboratories. Thus, only products that cannot meet the requirement without the modification would fail the requirement with the modification.

Another way that the Commission could reduce the economic impact of any proposed regulation, including the proposed frame child carrier rule, is to allow for a later effective date. The Commission proposes a 6-month effective date, which is the least amount of time frame child carrier firms familiar with the applicable ASTM standard have indicated they would need for new product development (1.5 years was the longest estimate, with most firms suggesting a 6-month to 1-year time frame). Product redevelopment might be necessary for some noncompliant firms to meet the requirements of ASTM F2549-14; although staff does not believe that complete redesigns will be necessary based on preliminary product testing. In particular, no product modifications should be necessary to meet the proposed pass/fail criteria for the retention system performance requirement because, as already mentioned, the proposed

requirement only clarifies what the test laboratories are already performing. A later effective date, more in line with the longest estimate of time required for product redevelopment, could reduce the economic impact in two ways. One, firms are less likely to experience a lapse in production, which could result if they are unable to comply within the required timeframe. Two, firms could spread costs over a longer time period, thereby reducing their annual costs, as well as the present value of their total costs. In the case of frame child carrier firms, a longer effective date would primarily benefit firms with noncompliant products.

F. Impact of Proposed 16 CFR Part 1112 Amendment on Small Businesses

As required by the RFA, staff conducted a Final Regulatory Flexibility Analysis (FRFA) when the Commission issued the part 1112 rule (78 FR 15836, 15855-58). Briefly, the FRFA concluded that the accreditation requirements would not have a significant adverse impact on a substantial number of small test laboratories because no requirements were imposed on test laboratories that did not intend to provide third party testing services. The only test laboratories that were expected to provide such services were those that anticipated receiving sufficient revenue from the mandated testing to justify accepting the requirements as a business decision. Moreover, a test laboratory would only choose to provide such services if it anticipated receiving revenues sufficient to cover the costs of the requirements.

Based on similar reasoning, amending 16 CFR part 1112 to include the NOR for the frame child carriers standard will not have a significant adverse impact on small test laboratories. Moreover, based upon the number of test laboratories in the United States that have applied for CPSC acceptance of accreditation to test for conformance to other mandatory juvenile product standards, we expect that only a few test laboratories will seek CPSC acceptance of their accreditation to test for conformance with the frame child carriers standard. Most of these test

laboratories will have already been accredited to test for conformance to other mandatory juvenile product standards, and the only costs to them would be the cost of adding the frame child carriers standard to their scope of accreditation. As a consequence, the Commission certifies that the NOR amending 16 CFR part 1112 to include the frame child carriers standard will not have a significant impact on a substantial number of small entities.

IX. Environmental Considerations

The Commission's regulations address whether the agency is required to prepare an environmental assessment or an environmental impact statement. Under these regulations, a rule that has "little or no potential for affecting the human environment," is categorically exempt from this requirement. 16 CFR 1021.5(c)(1). The proposed rule falls within the categorical exemption.

X. Paperwork Reduction Act

This proposed rule contains information collection requirements that are subject to public comment and review by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3521). In this document, pursuant to 44 U.S.C. 3507(a)(1)(D), we set forth:

- a title for the collection of information;
- a summary of the collection of information;
- a brief description of the need for the information and the proposed use of the information;
- a description of the likely respondents and proposed frequency of response to the collection of information;
- an estimate of the burden that shall result from the collection of information; and

- notice that comments may be submitted to the OMB.

Title: Safety Standard for Frame Child Carriers

Description: The proposed rule would require each frame child carrier to comply with ASTM F2549-14, *Standard Consumer Safety Specification for Frame Child Carriers*. Sections 8 and 9 of ASTM F2549-14 contain requirements for marking, labeling, and instructional literature. These requirements fall within the definition of "collection of information," as defined in 44 U.S.C. 3502(3).

Description of Respondents: Persons who manufacture or import frame child carriers.

Estimated Burden: We estimate the burden of this collection of information as follows:

Table 1 – Estimated Annual Reporting Burden

16 CFR Section	Number of Respondents	Frequency of Responses	Total Annual Responses	Hours per Response	Total Burden Hours
1230.2(a)	15	3	45	1	45

Estimates are based on the following:

Section 8.1.1 of ASTM F2549-14 requires that the name and the place of business (city, state, and mailing address, including zip code) or telephone number of the manufacturer, distributor, or seller be marked clearly and legibly on each product and its retail package. Section 8.1.2 of ASTM F2549-14 requires a code mark or other means that identifies the date (month and year, as a minimum) of manufacture.

There are 15 known entities supplying frame child carriers to the U.S. market that might need to make some modifications to their existing labels. We estimate that the time required to make these modifications is about 1 hour per model. Based on an evaluation of supplier product

lines, each entity supplies an average of three different models of frame child carriers;[8] therefore, the estimated burden associated with labels is 1 hour per model x 15 entities x 3 models per entity = 45 hours. We estimate the hourly compensation for the time required to create and update labels is $27.71 (U.S. Bureau of Labor Statistics, "Employer Costs for Employee Compensation," September 2013, Table 9, total compensation for all sales and office workers in goods-producing private industries: http://www.bls.gov/ncs/). Therefore, the estimated annual cost to industry associated with the labeling requirements is $1,246.95 ($27.71 per hour x 45 hours = $1,246.95). There are no operating, maintenance, or capital costs associated with the collection.

Section 9.1 of ASTM F2549-14 requires instructions to be supplied with the product. Frame child carriers are complicated products that generally require use and assembly instructions. Under the OMB's regulations (5 CFR 1320.3(b)(2)), the time, effort, and financial resources necessary to comply with a collection of information that would be incurred by persons in the "normal course of their activities" are excluded from a burden estimate, where an agency demonstrates that the disclosure activities required to comply are "usual and customary." Therefore, because we are unaware of frame child carriers that generally require use instructions, but lack such instructions, we tentatively estimate that there are no burden hours associated with section 9.1 of ASTM F2549-14 because any burden associated with supplying instructions with frame child carriers would be "usual and customary" and not within the definition of "burden" under the OMB's regulations.

[8] This number was derived during the market research phase of the initial regulatory flexibility analysis by dividing the total number of frame carriers supplied by all frame child carrier suppliers by the total number of frame child carrier suppliers.

Based on this analysis, the proposed standard for frame child carriers would impose a burden to industry of 45 hours at a cost of $1,246.95 annually.

In compliance with the Paperwork Reduction Act of 1995 (44 U.S.C. § 3507(d)), we have submitted the information collection requirements of this rule to the OMB for review. Interested persons are requested to submit comments regarding information collection by [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER], to the Office of Information and Regulatory Affairs, OMB (see the ADDRESSES section at the beginning of this notice).

Pursuant to 44 U.S.C. 3506(c)(2)(A), we invite comments on:

- whether the collection of information is necessary for the proper performance of the CPSC's functions, including whether the information will have practical utility;
- the accuracy of the CPSC's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;
- ways to enhance the quality, utility, and clarity of the information to be collected;
- ways to reduce the burden of the collection of information on respondents, including the use of automated collection techniques, when appropriate, and other forms of information technology; and
- the estimated burden hours associated with label modification, including any alternative estimates.

XI. Preemption

Section 26(a) of the CPSA, 15 U.S.C. 2075(a), provides that when a consumer product safety standard is in effect and applies to a product, no state or political subdivision of a state may either establish or continue in effect a requirement dealing with the same risk of injury

unless the state requirement is identical to the federal standard. Section 26(c) of the CPSA also provides that states or political subdivisions of states may apply to the Commission for an exemption from this preemption under certain circumstances. Section 104(b) of the CPSIA refers to the rules to be issued under that section as "consumer product safety rules." Therefore, the preemption provision of section 26(a) of the CPSA would apply to a rule issued under section 104.

XII. Request for Comments

This NPR begins a rulemaking proceeding under section 104(b) of the CPSIA to issue a consumer product safety standard for frame child carriers, and to amend part 1112 to add frame child carriers to the list of children's product safety rules for which the CPSC has issued an NOR. We invite all interested persons to submit comments on any aspect of the proposed mandatory safety standard for frame child carriers and on the proposed amendment to part 1112. Specifically, the Commission requests comments on the costs of compliance with, and testing to, the proposed frame child carriers safety standard, the proposed six-month effective date for the new mandatory frame child carriers safety standard, and the amendment to part 1112.

Comments should be submitted in accordance with the instructions in the **ADDRESSES** section at the beginning of this notice.

List of Subjects

16 CFR Part 1112

Administrative practice and procedure, Audit, Consumer protection, Reporting and recordkeeping requirements, Third party conformity assessment body.

16 CFR Part 1230

Consumer protection, Imports, Incorporation by reference, Infants and children, Labeling, Law enforcement, and Toys.

For the reasons discussed in the preamble, the Commission proposes to amend Title 16 of the Code of Federal Regulations as follows:

PART 1112—REQUIREMENTS PERTAINING TO THIRD PARTY CONFORMITY ASSESSMENT BODIES

1. The authority citation for part 1112 continues to read as follows:

Authority: 15 U.S.C. 2063; Pub. L. 110-314, section 3, 122 Stat. 3016, 3017 (2008).

2. Amend Part 1112.15 by adding paragraph (b)(38) to read as follows:

§ 1112.15 When can a third party conformity assessment body apply for CPSC acceptance for a particular CPSC rule and/or test method?

***** ***** ***** ***** *****

(b) (38) 16 CFR part 1230, Safety Standard for Frame Child Carriers.

* * * * *

3. Add part 1230 to read as follows:

PART 1230-SAFETY STANDARD FOR FRAME CHILD CARRIERS

Sec.

1230.1 Scope.

1230.2 Requirements for Frame Child Carriers.

Authority: The Consumer Product Safety Improvement Act of 2008, Pub. L. 110-314, § 104, 122 Stat. 3016 (August 14, 2008); Pub. L. 112-28, 125 Stat. 273 (August 12, 2011).

§ 1230.1 Scope.

This part establishes a consumer product safety standard for frame child carriers.

§ 1230.2 Requirements for Frame Child Carriers.

(a) Each frame child carrier must comply with all applicable provisions of ASTM F2549-14, Standard Consumer Safety Specification for Frame Child Carriers, approved on January 1, 2014. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may obtain a copy from ASTM International, 100 Bar Harbor Drive, P.O. Box 0700, West Conshohocken, PA 19428; http://www.astm.org/cpsc.htm. You may inspect a copy at the Office of the Secretary, U.S. Consumer Product Safety Commission, Room 820, 4330 East West Highway, Bethesda, MD 20814, telephone 301-504-7923, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:

http://www.archives.gov/federal_register/code_of_federal regulations/ibr_locations.html.

(b) Comply with ASTM F2549-14 standard with the following exception:

(1) Instead of complying with section 6.5 of ASTM F2549-14, comply with the following:

(i) 6.5 *Retention System:*

(A) 6.5.1 A retention system, including a shoulder restraint, shall be provided to secure the occupant in a seated position in any of the manufacturer's recommended use positions.

(B) 6.5.2 Before shipment, the manufacturer shall attach the retention system in such a manner that it will not detach in normal usage.

(C) 6.5.3 If the retention system includes a crotch restraint designed to work with a lap belt, it shall be designed such that its use is mandatory when the retention system is in use.

(D) 6.5.4 When tested in accordance with 7.5, the restraint system and its closing means (for example, a buckle) shall not break, disengage or separate at any seam and all fasteners shall not release or suffer damage that impairs the operation and function of the restraint system. At the end of the tests, the CAMI dummy shall not be released fully or fall out of the carrier.

(ii) [Reserved]

(2) [Reserved]

Dated: _____

_____
Todd A. Stevenson,
Secretary, Consumer Product Safety Commission

Staff Briefing Package

Frame Child Carriers
Notice of Proposed Rulemaking

April 21, 2014

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Briefing Memorandum

UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
4330 EAST WEST HIGHWAY
BETHESDA, MARYLAND 20814

This document has been electronically approved and signed.

Memorandum

April 21, 2014

TO: The Commission
Todd Stevenson, Secretary

THROUGH: Stephanie Tsacoumis, General Counsel
Elliot F. Kaye, Executive Director
Robert J. Howell, Deputy Executive Director for Safety Operations

FROM: George A. Borlase, Assistant Executive Director
Office of Hazard Identification and Reduction

Patricia Edwards, Project Manager
Directorate for Engineering Sciences

SUBJECT: Notice of Proposed Rulemaking for Frame Child Carriers and Related Notice of Requirements

I INTRODUCTION

Section 104 of the Consumer Product Safety Improvement Act of 2008 (CPSIA) is the Danny Keysar Child Product Safety Notification Act. This Act requires the U.S. Consumer Product Safety Commission (CPSC or the Commission) to: (1) examine and assess voluntary safety standards for certain infant or toddler products, and (2) promulgate mandatory consumer product safety standards that are substantially the same as the voluntary standards or more stringent than the voluntary standards if the Commission determines that more stringent standards would further reduce the risk of injury associated with these products. The list of products in section 104 includes infant carriers.

Infant carriers is a category that covers a variety of products, including hand-held infant carriers, hand-held bassinet/cradles, soft infant and toddler carriers, slings, and frame child carriers. Each of these distinct products falls within the scope of an ASTM International (ASTM) voluntary standard. Even though all of these products are intended to carry infants and/or toddlers, there are many different standards that cover these products, due to the differences in product design and associated hazards.

This briefing package deals with products that are included in the scope of the voluntary standard, ASTM F2549-14, *Standard Consumer Safety Specification for Frame Child Carriers*, and provides a review of the incident data and an assessment of the effectiveness of ASTM F2549-14. The first version of F2549 was approved and published in October 2006. The current version, F2549-14, was approved on January 1, 2014, and published in February 2014. The package also discusses the potential impact of staff's recommendations on small businesses, reviews recent recalls associated with frame carriers, and provides staff's recommendations to the Commission.

Specifically, staff is recommending that the Commission publish a notice of proposed rulemaking (NPR) that incorporates by reference the voluntary standard, ASTM F2549-14, *Standard Consumer Safety Specification for Frame Child Carriers*, with one modification, as the new consumer product safety standard for frame carriers. The proposed modification is expected to be balloted by ASTM for inclusion to the voluntary standard in April or May 2014.

II BACKGROUND

A. Product Review

The scope of ASTM F2549-14 defines a "frame child carrier" as "a product normally of sewn fabric construction on a tubular metal or other frame, which is designed to carry a child, in an upright position, on the back of the caregiver." The intended occupants of frame carriers are children who are able to sit upright unassisted and weigh between 16 pounds and 50 pounds. As seen in Figure 1, frame carriers are intended to be worn on the back and suspended from both shoulders of the caregiver's body.

Figure 1. Frame Carrier Examples

B. Incident Data

As outlined in the memorandum from the Directorate for Epidemiology (Tab A), there were a total of 47 frame child carrier-related incidents reported to CPSC that occurred between January 1, 2003 and October 27, 2013. These 47 incidents include 28 reports received through the National Electronic Injury Surveillance System (NEISS). Although there were no fatalities in the 47 incidents, there were 33 injuries reported. The oldest child involved in an incident was reported to be 3 years old. There were some incidents where age was not reported because there was no injury involved or the age of the child was unknown.

Among the 33 reported nonfatal injuries, there were no hospitalizations. More than half of these incidents reported a serious injury, such as a closed-head injury[1] or a fracture of the leg or face. The other reported injuries included lacerations, dislocations, and contusions/abrasions, among others.

A majority of the injuries resulted from falls from the frame child carrier. Many of the falls occurred when children slipped out of the frame child carrier through leg openings; in other scenarios, children fell out when carriers, placed on elevated surfaces, toppled over, or when caregivers fell while carrying an infant in the carrier. For other falls, the specifics of the circumstances were not reported. Certain non-fall injuries occurred when the frame carrier tipped over due to instability when placed upright on the floor or from caregiver errors in placing/removing the child in/from the carrier.

The remaining 14 incident reports indicated that no injury had occurred or else provided no information about any injury. However, many of the 14 incident reports described scenarios that staff believes presented the potential for a serious injury or even death.

C. Hazard Patterns

CPSC staff reviewed all 47 reported incidents (33 with injuries and 14 without injuries) to identify hazard patterns associated with frame child carriers. Subsequently, staff considered each pattern when reviewing the adequacy of ASTM F2549-14.

Staff grouped the incidents into three broad categories of hazard pattern (product-related, non-product-related, and unknown) and then further classified the incidents within each category. In order of frequency of incident reports, the hazard patterns are described below:

1) Product-Related: Twenty-nine of the 47 incidents, including 15 of the 33 injuries, were attributed to product-related issues. The specific product-related issues were:

A. ***Structural integrity*** of the frame child carrier was identified as a problem in 11 (23 percent) of the 47 incidents. Reported problems included failure of caregiver's attachment components, poor quality stitching on straps, detachment of the cloth component from the frame, loose screws, and breakage of the frame, which resulted in an

[1] According to staff from the Directorate for Health Sciences, a closed head injury is a head injury where the skull remained intact but it can range in severity from a minor bump to a severe life-threatening traumatic brain injury.

abrasion injury. A review of the data shows that each of the 11 incidents involved carriers manufactured before the initial publication of the ASTM standard in 2006.

B. ***Stability*** problems of the frame child carrier were reported in nine incidents (19 percent); all nine incidents resulted in an injury to the head/face of the child. In some cases, where the carrier was placed on an elevated surface, the infant fell out of the carrier as the carrier toppled over. In other cases, where the carrier was at ground level, the infant fell with the carrier when the carrier tipped over. All of the nine incidents were from NEISS reports; and thus, information about the carrier and details about the incident are unknown. Three of the nine incidents occurred prior to 2006, and thus, involved carriers that were manufactured prior to the initial publication of ASTM F2549.

C. ***Leg opening*** problems were reported in seven incidents (15 percent). In these cases, the leg holes were large enough to allow the child to slip out or almost slip out of the carrier. In a few of these incidents, the consumer also expressed concern about the potential risk of strangulation if the child were to get trapped in the process of slipping out through the opening. This category includes four injuries to the head and/or face due to a fall. Three of the seven incidents involved carriers manufactured after the ASTM standard was first published.

D. ***Restraint*** inadequacy was reported in two incidents (4 percent); one was a NEISS incident that occurred in 2005, and the other incident occurred in 2009. In both cases, the caregiver bent over and the restraints somehow failed to prevent the child from sliding out from the top. One injury is included in this category.

2) *Non-Product-Related:* Nine incidents (19 percent) involving nine injuries were not attributable to any product-related failure or defect. Five of the incidents resulted in arm dislocation injuries during the placement/removal of the child in/out of the frame child carrier. The remaining four incidents resulted in injuries (leg fracture, closed-head injury, and facial laceration, for example) when the caregiver slipped or tripped and fell along with the child in the carrier.

3) *Unknown:* There were nine NEISS incidents (19 percent) reported that provided very little scenario-specific details. Staff could not determine whether there was any product involvement or any hazardous external circumstances. All of the incidents resulted in injuries to the head and/or face due to falls.

D. History of F2549

The voluntary standard for frame child carriers was first approved and published in December 2006, as ASTM F2549-06, *Standard Consumer Safety Specification for Frame Child Carriers*. ASTM has revised the voluntary standard five times since then. The current version, ASTM F2549-14, was approved on January 1, 2014.

The original version, ASTM F2549-06, contained requirements to address the following issues:

- Sharp points
- Small parts
- Lead in paint
- Wood parts

- Scissoring, shearing, pinching
- Openings
- Exposed coil springs
- Locking and latching (for carriers that fold for storage, this requirement helps prevent unintentional folding)
- Unintentional folding (for carriers with kick stands that can stand freely, this requirement helps prevent the unintentional folding of the kick stand)
- Labeling
- Protective components
- Leg openings (to help prevent smaller occupants from falling out of the carrier through a single leg opening)
- Dynamic strength (tests the frame, fasteners, and seams/stitching under dynamic conditions to help prevent breakage or separation)
- Static load (ensures the carrier can hold three times the maximum recommended weight)
- Stability (for carriers that can stand freely, this helps prevent an occupied carrier from tipping over during normal use)
- Retention system (requires that all carriers have a restraint system and also provides a method for testing the restraints)
- Handle integrity (helps prevent the handle from breaking or separating when it is pulled with three times the maximum recommended weight)

ASTM F2549-08 (approved November 1, 2008) included:

- New flammability requirements for carriers
- New toy accessory requirements
- A revised unintentional folding test procedure, adding a weight load to mimic an occupant in the carrier.

ASTM F2549-09 (approved April 1, 2009) included:

- A revised dynamic strength test procedure because some carrier designs could not be tested using the old method.

ASTM F2549-09a (approved July 1, 2009) included:

- An editorial change of the reference to the flammable solids requirement [16 C.F.R. § 1500.3 (C)(6)(vi)] to correct an editorial error.

ASTM F2549-13 (approved November 1, 2013) included:

- A revised leg opening test procedure to reflect the use of the product better and explain what is happening in incident reports where children were slipping through a leg opening.
- A revised scope to include carriers rated for weights up to 50 pounds, which better reflects the existing market for frame child carriers.

ASTM F2549-14 (approved January 1, 2014) included:

- A revised dynamic strength test to accommodate the greater weight rating (which was changed in version F2549-13).

Tab B, the CPSC Directorate for Engineering Sciences (ES) memorandum, provides details on some of the above requirements.

E. Other Relevant Standards

Staff found one international standard, EN 13209-1:2004, *European/British Standard for Child use and care articles- Baby carriers- Safety requirements and test methods- Part 1: Framed back carriers*, which addresses frame child carriers in a fashion similar to ASTM F2549-14. Tab B provides a detailed comparison of these two standards.

Although there are differences between the two standards, staff believes that the ASTM standard is more stringent in most areas and addresses most of the hazard patterns seen in the CPSC incident data. The exception is the test requirement for the occupant retention system (known as the child-restraint system in the EN standard). The EN standard has clear pass/fail requirements for restraint performance, and the ASTM standard does not. Both standards include a test procedure that rotates the carrier a full 360 degrees when occupied by a surrogate dummy. In addition, there are procedures in both standards that apply forces to the retention straps, attachment points, and the dummy legs. The EN standard requirement states that the dummy shall not fall completely out of the restraint system and that the attachment of the restraint system shall not break, deform, work loose, or become torn/displaced. Additionally, the EN standard requires that fasteners shall not be released or have suffered damage that impairs their operation and function. The ASTM standard does not contain any of this language and therefore, as discussed later in the package, staff is recommending a modification to the standard that mirrors some of the EN requirements on restraints.

III DISCUSSION

A. Adequacy of F2549-14 Requirements

As outlined in Tab B and Tab C, the Directorate for Health Sciences (HS) memorandum, CPSC staff believes that the current voluntary standard, ASTM F2549-14, sufficiently addresses the primary hazard patterns identified in the incident data. This section discusses how each of the identified hazard patterns listed above is addressed by the current voluntary standard, ASTM F2549-14.

Structural integrity

The structural integrity of frame carriers is tested in the current voluntary standard, F2549-14, through the dynamic strength test and the static load test, which are outlined in more detail in Tab B. Because there were 11 reported incidents associated with structural integrity involving carriers made prior to the first publication of the ASTM standard, and no incidents have been reported with carriers made since then, staff concludes that the combination of these tests is adequate to address the issues associated with structural integrity.

Stability problems

A total of nine tip-over incidents were reported to CPSC, all through hospital emergency departments with very little scenario-specific details. Staff's review of these incident reports

shows that three incidents involved carriers falling from elevated surfaces. The fall hazard and recommendations to mitigate this hazard, including not placing the carrier on counter tops, tables, or other elevated surfaces, are specified in a warning label requirement. The standard requires this warning label to be in a conspicuous location, visible to the caregiver each time the occupant is placed in the carrier, or when the caregiver places the product on his or her body.

In addition to the warning label requirement, the current voluntary standard includes a stability requirement and associated test procedure so that carriers that use a kickstand, can remain stable when in an upright position. When used correctly, a kickstand is designed to make the carrier stable so that the child can remain safely in the carrier just prior to and immediately after being carried by the caregiver. Tab B outlines this test in more detail. Staff considers the stability test in the ASTM standard to be a strong test, and thus, staff views the test as capable of discerning stable versus unstable carriers.

Based on the reasons outlined above, staff believes that ASTM F2549-14 adequately addresses stability issues through both a warning label requirement and a strong test requirement and associated test procedure; thus, staff is not recommending any modifications to the standard to address this hazard pattern.

Leg opening problems

Leg opening problems were reported in seven incidents. In those cases, the leg holes were large enough to allow the child to slip out or almost slip out of the carrier. In a few of these incidents, the consumer also expressed concern about the potential risk of strangulation if the child slipped out through the opening. This category includes four head/face injuries from falls. A closer look at the incidents revealed that four of the seven incidents occurred before the standard was published in 2006. After initial publication of the standard in October 2006, no other leg opening incidents were reported until 2012. During a 6-month period between August 2012 and January 2013, three new leg opening incidents occurred, all with the same model carrier.

Because of the new incidents, CPSC staff began working with ASTM in spring 2013, to update the leg opening test in ASTM F2549-09a. First, staff tested various models of carriers to determine whether they passed the requirements in F2549-09a. Staff collected 10 carriers from a variety of suppliers, including the carrier involved in the three incidents, and tested them to the leg opening requirement in ASTM F2549-09a. This test requires the carrier to be adjusted to the smallest leg opening, then a 7-pound, 16.5-inch circumference test sphere[2] is placed in the carrier. Next, the carrier is tilted so that the leg opening is horizontal, and then the carrier is held in this position for an additional minute. The test is repeated for the other leg opening. To pass the test, the sphere must not pass through either leg opening. Staff found that all 10 carriers tested passed the requirement specified in ASTM F2549-09a.

Staff, with the help of an ASTM task group, developed a modified, more stringent test method that addressed the recent incidents. Instead of being adjusted to the smallest leg opening, carriers were fitted around a CAMI infant dummy Mark II (modeled after a 50 percentile 6-month old child). Four of the 10 carriers failed the modified leg-opening test. Notably, one of the carriers

[2] The test sphere size is based on the hip circumference of the smallest child likely to use the frame child carrier (3 to 5 months of age).

that failed the modified test was associated with the recent incident reports of children falling through leg openings.

In fall 2013, ASTM balloted the modified test procedure for leg openings that was developed by staff and the ASTM task group. This ballot item passed and was included in the revised standard, F2549-13. Tab B contains more details about the modified test procedure.

With the inclusion of this recently revised leg-opening test method, staff believes that the current voluntary standard is now adequate to address leg-opening hazards.

Although staff believes the current standard adequately addresses the three hazard patterns described above, we will continue to monitor incidents and work with ASTM to make any necessary future changes.

Restraints

There were two reported incidents of restraint inadequacy. One was a NEISS report where a child fell out of a carrier when the caregiver leaned forward. This report contained no information regarding whether the restraints were used properly or how the restraints were involved. The other incident involved an 8-month-old child who stood up and almost fell out, while the caregiver was leaning forward. In this incident, it is not known what happened to the shoulder straps, but the report mentioned that they might have been adjusted too loose. There was no information in the report that indicates the restraints broke in any way or became loose on their own.

The current ASTM voluntary standard contains a performance requirement and a test procedure intended to address this hazard pattern. However, staff has found the performance requirement in the ASTM standard to be inadequate.

The performance requirement and the test method sections provide the main substance of many ASTM standards. These two sections often refer to each other. The performance requirement section spells out the pass/fail criteria associated with various requirements, while the test method section outlines the procedures for conducting the tests that need to be performed to determine whether the product meets the pass/fail criteria. Although some performance requirements do not have an associated test method, all test methods must have an associated performance (or general) requirement.

The current performance requirement associated with the retention (restraint) system for frame child carriers states:

> 6.5 *Retention System:*
> 6.5.1 A retention system, including a shoulder restraint, shall be provided to secure the occupant in a seated position in any of the manufacturer's recommended use positions when tested in accordance with 7.5.
> 6.5.2 Before shipment, the manufacturer shall attach the retention system in such a manner that it will not detach in normal usage.

lap belt, it shall be designed such that its use is mandatory when the retention system is in use.

The retention system test procedure (section 7.5 of the standard) has three basic parts. In the first part, a 45-lbf (pound-force) is applied to a single attachment point of the retention system.

The second part requires a CAMI infant dummy Mark II to be placed in the carrier with the restraint system secured. Then, a 45-lbf pull force is applied horizontally on the centerline of either leg of the dummy. This procedure is then repeated five times.

For the third part of the test procedure, the carrier, containing the CAMI dummy, is lifted and rotated backwards 360° about the axis of the intersection of the seat back and bottom. The carrier is then rotated 360° around the axis of the side edge of the seat bottom.

Staff believes the purpose of the first two parts of the test procedure is to help ensure that the retention system and all buckles do not break, disengage, or separate at any seams. In addition, staff believes that the purpose of the third part of the test procedure is to help ensure that the CAMI dummy does not fall out of the carrier. Staff believes that the standard should express these goals as criteria to determine whether restraint systems comply with the performance requirements. However, these pass/fail criteria are not mentioned explicitly in the performance requirement section. Staff does not know why the performance requirement criteria are missing, but this is an obvious oversight in the standard. Staff believes this oversight should be corrected. If not corrected, a frame carrier that is undergoing testing could fail the intended criteria, but still be found to comply with the standard. Thus, correcting the standard prevents situations where a frame carrier fails the intended criteria but is found to comply with the standard, and in effect, makes the standard more stringent.

Staff discovered the oversight in December 2013, while drafting this briefing package. We consulted with representatives from two testing laboratories and the ASTM subcommittee chairman about the issue. Testing laboratory personnel reported that they likely had not tested any frame carriers that should have failed the purpose of the requirement; otherwise, they would have noted the oversight previously.

Both test laboratory representatives consulted, and the ASTM subcommittee chairman agree that the requirement should be revised so that the purpose is expressed clearly. With the help of the test laboratory personnel, staff developed a revised requirement using language found in similar requirements in the EN standard and the ASTM high chair and stroller standards. The new language requires that buckles shall not break, disengage, or separate and that all fasteners cannot become damaged to the point that the restraint system fails to function as a result of the test. In addition, the recommended language requires that the CAMI dummy does not fall out of the carrier.

In February 2014, staff wrote a letter to the ASTM subcommittee chairman,[3] outlining the suggested new language and asking that the matter be discussed at the next subcommittee

[3] http://www.cpsc.gov//Global/Regulations-Laws-and-Standards/Voluntary-Standards/Voluntary-Standards-Reports/Frame%20Infant%20Carriers/LetterToASTMFrameCarriers21014.pdf.

meeting. During the April 9, 2014 ASTM subcommittee meeting, the letter (with the recommended language) was shared with the subcommittee. The subcommittee agreed to ballot the recommended language for inclusion in the next revision of the standard. As of the writing of this briefing package, the ballot has not been issued.

Accordingly, staff is recommending a modification to the ASTM standard for the NPR to revise the retention system performance requirement as follows (strikeout represents removed text, underline represents added text):

> 6.5 *Retention System:*
> 6.5.1 A retention system, including a shoulder restraint, shall be provided to secure the occupant in a seated position in any of the manufacturer's recommended use positions ~~when tested in accordance with 7.5~~.
> 6.5.2 Before shipment, the manufacturer shall attach the retention system in such a manner that it will not detach in normal usage.
> 6.5.3 If the retention system includes a crotch restraint designed to work with a lap belt, it shall be designed such that its use is mandatory when the retention system is in use.
> 6.5.4 When tested in accordance with 7.5, the restraint system and its closing means (for example, a buckle) shall not break, disengage or separate at any seam and all fasteners shall not release or suffer damage that impairs the operation and function of the restraint system. At the end of the tests, the CAMI dummy shall not be released fully or fall out of the carrier.

B. Compliance Recalls

Compliance staff reviewed the CPSC recalls and informative press releases on frame child carriers that occurred from January 1, 2003 to October 27, 2013. During that time, there were two consumer-level recalls involving frame carriers. One recall involved 4,000 units, and the other recall involved 40 units. Tab D, a memorandum from the CPSC Office of Compliance, provides more details on those two recalls.

C. Initial Regulatory Flexibility Analysis

Staff identified 15 firms supplying frame child carriers to the U.S. market, although additional firms may supply these products to U.S. customers. Most of these firms specialize in the manufacture and/or distribution of one of two distinct types of products: (1) children's products, including durable nursery products; or (2) outdoor products, such as camping and hiking gear. Based on U.S. Small Business Administration guidelines, nine of the 15 firms are small businesses, including three domestic manufacturers, five domestic importers, and one domestic firm with an unknown supply source.

The potential economic impact of the staff-recommended proposed standard on these firms is described in the Directorate for Economic Analysis memorandum (Tab E). The rule is unlikely to have a significant economic impact on the small manufacturers (two firms) and importers

(three firms) whose frame child carriers comply with the current ASTM voluntary standard. This is because the staff-recommended proposed rule does not differ substantively from ASTM F2549-14. The staff-recommended modification would incorporate the pass/fail criteria already used by test labs for the retention system performance test. Therefore, the compliant frame child carriers supplied by these firms already meet these pass/fail criteria. Although the remaining small manufacturer produces many other products which should lessen the economic impact and indicated that frame child carriers do not represent a large portion of the company's product line, we do not know the precise percentage of revenues that frame child carriers constitutes for this firm and thus cannot rule out a significant economic impact.

The economic impact on the two small importers of frame child carriers currently believed to be noncompliant will depend upon the extent of the changes required to come into compliance and the response of their supplying firms. Because no small importer with noncompliant frame child carriers responded to staff's information request, we cannot estimate the economic impact on these firms. However, even if their supplying firm passed all of the compliance costs onto the importers, several alternatives are available to these small importers (import a frame child carrier from a different supplier, replace the carrier with a different product, or remove the carrier from their product line) that could help mitigate the economic impact of the mandatory standard on these firms.

In addition to the requirements of the rule, there will be additional costs associated with third party testing, which is triggered when the rule goes into effect. However, based on available information, the impact is unlikely to be economically significant for the identified firms in this market for which revenue data were available.

D. Notice of Requirements

Section 14(a) of the CPSA requires that any children's product subject to a consumer product safety rule under the CPSA must be certified as complying with all applicable CPSC-enforced requirements. The children's product certification must be based on testing conducted by a CPSC-accepted third party conformity assessment body (test laboratory). The CPSA requires the Commission to publish a notice of requirements (NOR) for the accreditation of third party test laboratories to determine compliance with a children's product safety rule to which a children's product is subject. A proposed rule for frame child carriers, if issued as a final rule, would be a children's product safety rule that requires the issuance of an NOR.

The Commission published a final rule, *Requirements Pertaining to Third Party Conformity Assessment Bodies*. 16 C.F.R. part 1112 (78 Fed. Reg. 15836 (March 12, 2013)) (referred to here as Part 1112). This rule took effect on June 10, 2013. Part 1112 establishes the requirements for accreditation of third party testing laboratories to test for compliance with a children's product safety rule. The final rule also codifies all of the NORs that the CPSC has published to date for children's product safety rules. All new children's product safety rules, such as the proposed frame child carrier standard, would require an amendment to Part 1112 to create an NOR. Therefore, staff recommends that the Commission propose to amend Part 1112 to include frame child carriers in the list of children's product safety rules for which the CPSC has issued NORs.

IV EFFECTIVE DATE

Staff is recommending that the Commission propose an effective date of six months following publication of the final rule. Barring evidence to the contrary, six months is generally considered sufficient time for suppliers to come into compliance with a new standard and is typical for other CPSIA section 104 rules. Six months is also the period that the Juvenile Products Manufacturers Association (JPMA) typically allows for products in their certification program to shift to a new standard once that new standard is published. Therefore, juvenile product manufacturers are accustomed to adjusting to new standards within this time frame.

Although the Commission has provided longer effective date periods for standards that have complicated modifications, the modification staff is recommending is not expected to cause any changes to existing products.

Some firms familiar with the ASTM standard indicated that product development, if their frame carriers were not compliant with the ASTM standard, could take them anywhere from six months to a year and a half (most firms estimated between six months to a year, with one firm requiring a slightly longer time frame of one to one and a half years). These estimates are based on a total redesign of the product, which is not anticipated to be necessary for affected firms. Staff will be seeking comments specific to the proposed effective date in the NPR.

V STAFF RECOMMENDATIONS

CPSC staff recommends that the Commission publish an NPR that incorporates by reference the voluntary standard, ASTM F2549-14, *Standard Consumer Safety Specification for Frame Child Carriers,* with one modification to specify criteria for the retention system performance test as outlined below (strikeout represents removed text, underline represents added text):

> 6.5 *Retention System:*
> 6.5.1 A retention system, including a shoulder restraint, shall be provided to secure the occupant in a seated position in any of the manufacturer's recommended use positions ~~when tested in accordance with 7.5~~.
> 6.5.2 Before shipment, the manufacturer shall attach the retention system in such a manner that it will not detach in normal usage.
> 6.5.3 If the retention system includes a crotch restraint designed to work with a lap belt, it shall be designed such that its use is mandatory when the retention system is in use.
> 6.5.4 When tested in accordance with 7.5, the restraint system and its closing means (for example, a buckle) shall not break, disengage or separate at any seam and all fasteners shall not release or suffer damage that impairs the operation and function of the restraint system. At the end of the tests, the CAMI dummy shall not be released fully or fall out of the carrier.

Staff recommends this modification because, as currently written, the ASTM standard does not contain any pass/fail criteria associated with the test. Staff believes that the standard should

contain criteria to determine whether the restraint system complies with the performance requirements. Staff believes that this modification will result in a more stringent standard and therefore reduce the risk of injury associated with frame child carriers.

Staff is also recommending an effective date of six months after publication of the final rule.

TAB A: Frame Child Carrier-Related Deaths, Injuries, and Potential Injuries; January 1, 2003–October 27, 2013

TAB A

UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
4330 EAST WEST HIGHWAY
BETHESDA, MARYLAND 20814

Memorandum

Date: November 18, 2013

TO : Patricia L. Edwards
Frame Child Carriers Project Manager
Division of Mechanical Engineering
Directorate for Engineering Sciences

THROUGH: Kathleen Stralka
Associate Executive Director
Directorate for Epidemiology

Stephen Hanway
Division Director, Division of Hazard Analysis
Directorate for Epidemiology

FROM : Risana Chowdhury
Division of Hazard Analysis
Directorate for Epidemiology

SUBJECT : Frame Child Carrier-Related Deaths, Injuries, and Potential Injuries; January 1, 2003–October 27, 2013[4]

I. Introduction

This memorandum characterizes the number of deaths and injuries and the types of hazards related to frame child carriers over a period of more than 10 years from January 1, 2003 through October 27, 2013.[5] These characterizations are based on incident reports received by U.S. Consumer Product Safety Commission (CPSC or the Commission) staff. The number of emergency department-treated injuries associated with frame child carriers, for the time frame covered, was insufficient to derive any reportable national estimates.[6] Hence, this memorandum does not present injury estimates. However, the emergency department-treated injuries are included in the total count of reported incidents presented here.

[4] This analysis was prepared by CPSC staff. It has not been reviewed or approved by, and may not necessarily reflect the views of, the Commission.
[5] Not all of these incidents are addressable by an action the CPSC could take. It is not the purpose of this memorandum, however, to evaluate the addressability of the incidents, but rather, to quantify the number of fatalities and injuries reported to CPSC staff and to provide, when feasible, estimates of emergency department-treated injuries.
[6] According to the NEISS publication criteria, an estimate must be 1,200 or greater, the sample size must be 20 or greater, and the coefficient of variation must be 33 percent or smaller.

The ASTM voluntary standard for Frame Child Carriers, ASTM F2549, *Standard Consumer Safety Specification for Frame Child Carriers*, addresses safety issues related to these carriers. According to the ASTM definition, a "frame child carrier" is "a product, normally of sewn fabric construction on a tubular metal or other frame, which is designed to carry a child, in an upright position, on the back of the caregiver. A frame child carrier is intended for use with a child that is able to sit upright unassisted and weighs between 16 and 50 lbs. (7.3 and 22.7 kg). The frame child carrier is intended to be worn on the back of the caregiver's body, with the carrier, and thus the child, suspended from both shoulders of the caregiver. The seated position of the child is either facing towards or away from the caregiver."

ASTM F2549 was first developed in 2006, based on incident data provided by CPSC staff. For this analysis, CPSC staff reviewed data from the year 2003 forward, so that the rulemaking effort is based on a sufficient volume of reviewed incidents. In addition, this time frame allows for examination of the incident hazards reported before and after implementation of the voluntary standard.

II. Incident Data[7]

CPSC staff is aware of a total of 47 incidents related to frame child carriers that reportedly occurred from January 1, 2003 through October 27, 2013. Table 1 provides the breakdown of the incidents by year. Because reporting is ongoing, the number of injuries and non-injury incidents presented here may change in the future. Given that these reports are anecdotal and reporting is incomplete, CPSC staff strongly discourages drawing any inferences from the year-to-year increase or decrease shown in the reported data. Data for 2011, 2012, and 2013 are incomplete.

[7] The CPSC databases searched were the In-Depth Investigation (INDP) file, the Injury or Potential Injury Incident (IPII) file, the Death Certificate (DTHS) file, and the National Electronic Injury Surveillance System (NEISS). These reported deaths and incidents do not provide a complete count of all that occurred during this time period. However, they do provide a minimum number of deaths and incidents occurring during this period and illustrate the circumstances of the incidents related to frame child carriers.

The date of extraction for reported incident data was 10/28/13. Incident reports involving carriers do not always clearly specify the type of the carrier involved. As such, all data coded under product codes 1527 (Baby carriers or slings (backpacks)), 1548 (Baby carriers, not specified), and 1549 (Other baby carriers) were extracted, yielding a very large initial data pool. Upon careful joint review with CPSC's Directorates for Engineering Sciences, Economics, and Health Sciences staff, many cases were considered out of scope for this memorandum. For example, the report of a parent hit by a motor vehicle while carrying a child in the carrier was excluded. Cases where a child was outside the carrier, not using it, but was hurt by it, were excluded. With the exception of incidents occurring in U. S. military bases, all incidents that occurred outside of the United States have been excluded. To prevent any double-counting, when multiple reports of the same incident were identified, they were consolidated and counted as one incident.

Table 1: Frame Child Carrier-Related Reported Incidents

01/01/03 through 10/27/13

Incident Year	***Number of Reported Incidents***	
	Total	***Nonfatal Injuries***
2003	8	6
2004	2	2
2005	7	4
2006	3	2
2007	6	5
2008	3	2
2009	5	2
2010	3	2
2011*	2	2
2012*	3	2
2013*	5	4
Total	***47***	***33***

Source: CPSC epidemiological databases IPII, INDP, DTHS, and NEISS.
Note: * indicates data collection is ongoing.

Of the 47 frame child carrier-related incidents that reportedly occurred from January 1, 2003 through October 27, 2013, there were no fatalities. However, there were 33 incident reports of injury to the child during use of the product. The ages of the injured children ranged from 4 months to 3 years.

Among the 33 reported nonfatal injuries, there were no hospitalizations. More than half of these incidents reported a serious injury, such as a closed-head injury[8] or a fracture of the leg or face. The other reported injuries included lacerations, dislocations, and contusions/abrasions, among others.

A majority of the injuries resulted from falls from the frame child carrier. Many of the falls resulted from children slipping out through leg openings; in other scenarios, children fell out when carriers, placed on elevated surfaces, toppled, or when caregivers, carrying the infant in the carrier, fell. For some other falls, the specific circumstances of the fall were not reported. Some of the non-fall injuries resulted from the frame carrier tipping over due to instability or because of caregiver errors in placing the child into, or removing the child from, the carrier.

[8] According to staff from the Directorate for Health Sciences, a closed-head injury is a head injury where the skull remained intact but it can range in severity from a minor bump to a severe life-threatening traumatic brain injury.

The remaining 14 incident reports indicated that no injury had occurred or provided no information about any injury. However, many of the incident reports described scenarios which staff believes had the potential for a serious injury or even death.

III. Hazard Patterns

CPSC staff considered all 47 reported incidents (33 with injuries and 14 without injuries) to identify hazard patterns associated with frame child carriers. The incidents were grouped into three broad categories of hazards (product-related, non-product-related, and unknown) and classified further within each category. In order of frequency of incident reports, the hazard patterns are described below:

Product-Related: Twenty-nine of the 47 incidents, including 15 of the 33 injuries, were attributed to product-related issues. The specific product-related issues identified were as follows:

A. ***Structural integrity*** of the frame child carrier was identified as a problem in 11 (23 percent) of the 47 incidents. Reported problems included failure of caregiver's attachment components, poor quality stitching on straps, detachment of the cloth component from the frame, loose screws, and frame breakage, which resulted in an abrasion injury.

B. ***Stability*** problems of the frame child carrier were reported in nine incidents (19 percent); all nine incidents resulted in an injury to the head/face of the child. In some cases, where the carrier was placed on an elevated surface, the infant fell out of the carrier as it toppled over. In other cases, where the carrier was on ground level, the infant fell with the carrier when it tipped over.

C. ***Leg opening*** problems were reported in seven incidents (15 percent). In these cases, the leg holes were large enough to allow the child to slip out or almost slip out of the carrier. In a few of these incidents, the consumer also expressed concern about the potential risk of strangulation if the child were to get trapped in the process of slipping out through the opening. This category includes four injuries to the head and/or face due to a fall.

D. ***Restraint*** inadequacy was reported in two incidents (4 percent). In both cases, the caregiver had bent over and the restraints failed to prevent the child from sliding out from the top. One closed-head injury is included in this category.

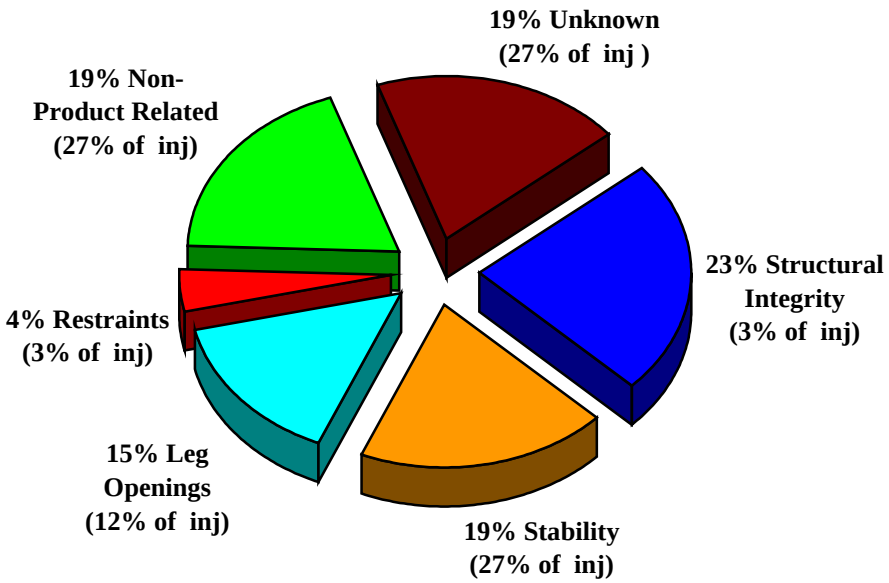
Non-Product-Related: Nine incidents (19 percent) involving nine injuries were not attributable to any product-related failure or defect. Five of the incidents resulted in arm dislocation injuries during the placement of the child into or removal of the child from the frame child carrier. The remaining four incidents resulted in injuries (leg fracture, closed head injury, and facial laceration, for example) when the caregiver slipped or tripped and fell along with the child in the carrier.

Unknown: There were nine incidents (19 percent) reported through hospital emergency-departments which provided very little scenario-specific detail. It could not be determined if

there was any product involvement or there were any hazardous external circumstances. All of the incidents resulted in injuries to the head and/or face due to falls.

The distribution of the 47 reported incidents and the associated injuries by the hazard patterns described above are shown in Figure 1.

Fig 1: Distribution of Incidents and Injuries Associated with Frame Child Carriers by Hazard Pattern Characterizations 01/01/03-10/27/13



Source: CPSC epidemiological databases IPII, INDP, and DTHS.
Note: "inj" ="injuries".

TAB B: Staff's Review and Evaluation of ASTM F2549-14, *Standard Consumer Safety Specification for Frame Child Carriers*, for Incorporation by Reference into Staff's Draft Proposed Rule

TAB B

UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
4330 EAST WEST HIGHWAY
BETHESDA, MARYLAND 20814

Memorandum

February 16, 2014

TO: Patricia L. Edwards
Frame Child Carriers Project Manager

THROUGH: George A. Borlase, Ph.D., P.E.
Assistant Executive Director
Office of Hazard Identification and Reduction

Mark Kumagai, P.E., Director
Division of Mechanical Engineering
Directorate for Engineering Sciences

FROM: Kevin Lee
Division of Mechanical Engineering
Directorate for Engineering Sciences

SUBJECT: Staff's Review and Evaluation of ASTM F2549-14, *Standard Consumer Safety Specification for Frame Child Carriers*, for Incorporation by Reference into Staff's Draft Proposed Rule

I. INTRODUCTION

In accordance with section 104 of the CPSIA, this memorandum assesses the effectiveness of ASTM F2549-14, *Standard Consumer Safety Specification for Frame Child Carriers*, and outlines staff's recommendation to incorporate by reference that standard into the proposed mandatory rule for frame child carriers.

ASTM F2549-14 defines a "frame child carrier" as "a product, normally of sewn fabric construction on a tubular metal or other frame, which is designed to carry a child, in an upright position, on the back of the caregiver. A frame child carrier is intended for use with a child that is able to sit upright unassisted and weighs between 16 and 50 lbs. (7.3 and 22.7 kg). The frame

child carrier is intended to be worn on the back of the caregiver's body, with the carrier, and thus the child, suspended from both shoulders of the caregiver. The seated position of the child is either facing towards or away from the caregiver." Figure 1-A is a typical frame child carrier.

Figure 1-A. Frame Child Carrier

A) History of F2549, *Standard Consumer Safety Specification for Frame Child Carriers*

The voluntary standard for frame child carriers was first approved and published in October 2006, as ASTM F2549-06, *Standard Consumer Safety Specification for Frame Child Carriers*. The standard has been revised five times since then. The current version, ASTM F2549-14, was approved on January 1, 2014.

ASTM F2549-06 contained requirements to address the following issues:

- Sharp points
- Small parts
- Lead in paint
- Wood parts
- Scissoring, shearing, pinching
- Openings
- Exposed coil springs
- Locking and latching (for carriers that fold for storage, this requirement helps prevent unintentional folding)
- Unintentional folding (for carriers with kick stands that can stand freely, this requirement helps prevent the unintentional folding of the kick stand)
- Labeling
- Protective components
- Leg openings (to prevent smaller occupants from falling out of the carrier through a single leg opening)

- Dynamic strength (tests the frame, fasteners, and seams/stitching under dynamic conditions to prevent breakage or separation)
- Static load (enables the carrier to hold three times the maximum recommended weight)
- Stability (for carriers that can stand freely, this prevents an occupied carrier from tipping over during normal use)
- Restraints (requires that all carriers have a restraint system and also provides a test method for testing the restraints)
- Handle integrity (prevents the handle from breaking or separating when pulled with three times the maximum recommended weight).

ASTM F2549-08 (approved on November 1, 2008) included:

- New flammability requirements for carriers
- New toy accessory requirements
- A revised unintentional folding test [added a 16 lb. (or greater for the minimum recommended weight) 6-inch to 8-inch diameter shot bag in the seat at the beginning of the test to mimic an occupant in the carrier].

ASTM F2549-09 (approved on April 1, 2009) included:

- A revised dynamic strength test to allow for various carrier designs (removed the 6-inch x 6-inch wood block that was centered on the seat, and required that the 40-lb. shot bag be dropped onto the seat itself).

ASTM F2549-09a (approved on July 1, 2009) included:

- An editorial change to section 5.12 quoting 16 C.F.R. § 1500.3(c)(6)(vi) instead of 16 C.F.R. § 1500.3(c)(6)(i).

ASTM F2549-13 (approved on November 1, 2013) included:

- A revised leg opening requirement to address new incidents. The current leg opening test method now uses a CAMI infant dummy Mark II as an occupant surrogate for making adjustments to the fit of the carrier. Moreover, the waist restraint is adjusted using a webbing tension pull device. These changes help provide consistency between test labs and also better mimic real-life adjustments to the carriers to prevent falls through leg openings.
- A revised scope to include carriers rated for weights up to 50 pounds, which better reflects the existing market for frame child carriers.

ASTM F2549-14 (approved on January 1, 2014) included:

- A revised dynamic strength test to account for the revised scope weight. It uses a weight of 40 lbs. (18.1 kg) or the manufacturer's maximum recommended weight for the occupant, whichever is greater.

II. INCIDENT HAZARD REVIEW

According to the Directorate for Epidemiology staff,[9] there were 47 incidents with no fatalities related to frame child carriers reported to have occurred from January 1, 2003 through October 27, 2013. The following is a listing of the hazard patterns identified in the incident reports in order of frequency:

A. ***Structural integrity*** of the frame child carrier was identified as a problem in 11 incidents. Reported problems included failure of caregiver's attachment components, poor quality stitching on straps, detachment of the cloth component from the frame, loose screws, and breakage of the frame, which resulted in an abrasion injury. All of the 11 incidents were with products made before the standard was first published in October 2006.
B. ***Stability*** problems of the frame child carrier were reported in nine incidents; all nine incidents resulted in an injury to the head/face of the child. Three of the incidents happened in 2006 or earlier; thus, the carriers involved were manufactured before the ASTM standard. The other six incidents are from NEISS data; thus, the age of the carriers is unknown. In some of these cases, where the carrier was placed on an elevated surface, the infant fell out of the carrier as it toppled over. In other cases, where the carrier was at ground level, the infant fell with the carrier when it tipped over.
C. ***Leg openings*** problems were reported in seven incidents. Four of the incidents occurred before the ASTM standard was first published. The other three incidents occurred in late 2012 to early 2013. In all these cases, the leg holes were large enough to allow the child to slip out or almost slip out of the carrier. In a few of these incidents, the consumer also expressed concern about the potential risk of strangulation if the child were to get trapped while slipping out through the opening. This category included four injuries to the head/face due to a fall.
D. ***Restraint*** inadequacy was reported in two incidents. One was a NEISS incident from 2005; thus, the carrier was made before the initial publication of the standard. In the other, the carrier had a date code of May 18, 2009; thus, the carrier was manufactured after the ASTM standard had been published and revised twice. In both cases, the caregiver reportedly bent over and the restraints failed to prevent the child from sliding out from the top. One closed-head injury is included in this category.

There were also nine incidents that staff determined to be non-product-related and nine additional incidents where staff could not determine the hazard pattern.

III. ADEQUACY OF ASTM F2549-14 REQUIREMENTS

CPSC's Directorate for Engineering Sciences' Division of Mechanical Engineering (ESME) staff believes that the current voluntary standard, ASTM F2549-14, sufficiently addresses many of the general hazards associated with the use of durable nursery products, such as sharp points, small parts, lead in paint, wood parts, scissoring, shearing, pinching, openings, exposed coil

[9] Chowdhury, Risana, "Frame Child Carrier-Related Deaths, Injuries, and Potential Injuries; January 1, 2003–October 27, 2013," November 18, 2013.

springs, locking and latching, unintentional folding, labeling, protective components, flammability, and toy accessories that are sold with the carrier.

This section discusses how each hazard pattern identified in the incident data relates to the current voluntary standard, ASTM F2549-14.

Hazard Pattern 1- Structural Integrity
The structural integrity of frame carriers is tested in the current voluntary standard, F2549-14, through the dynamic strength test and the static load test.

In the dynamic strength test, the carrier is attached to a test torso while a shot bag that is 40-lbs. (or the manufacturer's maximum recommended weight, whichever is greater) is secured in the carrier's seat. Then the carrier is subjected to 50,000 cycles of alternating vertical movement at an amplitude of 4.7 inches and a frequency of 2 Hertz (Hz). If the carrier is designed to stand freely in the upright position, an additional dynamic test is performed: the same weight (as used above) is lifted 3 inches from the seat surface and dropped onto the seat 500 times at 4 seconds/cycle while the carrier is sitting on a horizontal test plane.

In the static load test, the carrier is fastened to a test torso, per the manufacturer's instructions. Then a 6-inch standard weld cap centers a weight equal to three times the maximum manufacturer's recommended weight in the seat area (weight of weld cap included). This weight is gradually applied within 5 seconds and held for an additional 1 minute. If the carrier is designed to stand upright freely, this test will be repeated with the carrier resting on a concrete floor covered in 1/8-inch thick vinyl floor covering.

The incident data did not show any patterns of design or material defects or any other evidence to indicate that the current structural integrity requirements should be stricter. In addition, all of the reported incidents occurred with carriers that were made before the ASTM standard was first published. With no incidents relating to structural integrity since then, staff believes that the combination of these tests is adequate to address the issues and incidents associated with structural integrity. Although staff believes the current standard adequately addresses the hazard pattern, we will continue to monitor incidents and work with ASTM to make any necessary future changes.

Hazard Pattern 2- Stability Problems
Several incidents characterized by this hazard pattern were related to the stability of the carrier when placed on an elevated surface. In other cases, where the carrier was at ground level, the infant fell with the carrier when the carrier tipped over. All of the stability incidents were reported through the NEISS system; thus, the circumstances involved are unknown. In addition, the age of the carrier and whether it was manufactured to comply with the ASTM standard is unknown.

To address the stability hazard pattern, the current voluntary standard includes a stability test. In addition, the standard requires carriers to include a warning label statement telling consumers not to place the carrier on counter tops, tables, or other elevated surfaces.

In the stability test, the carrier is placed on a 12-degree plane with the seat adjusted to the highest use position. A stop is placed on the plane to prevent the carrier from sliding but not from tipping over. A CAMI infant dummy Mark II, fitted with a 23-lb. weighted vest (for a total of at least 40 pounds), is then placed in the carrier. The carrier is placed on the 12-degree plane in all orientations likely to fail the test. To pass the test, the occupied carrier shall not tip over.

The test is conducted on an inclined surface, and the center of gravity is raised by adjusting the seat height, where applicable; in addition, the weighted vest is used, making this a strong test. Staff believes that this is an adequate requirement and believes that some of the reported incidents may have resulted from caregivers not using the kickstand, as intended. If the kickstand is not used correctly, the carrier is much less stable.

Although staff believes that the current standard adequately addresses the hazard pattern, we will continue to monitor incidents and work with ASTM to make any necessary future changes.

Hazard Pattern 3- Leg Openings

Leg opening problems were reported in seven incidents. Four of the seven incidents occurred in carriers that were made prior to the ASTM standard. The other three incidents occurred from late 2012 through early 2013. In these cases, the leg holes were large enough to allow the child to slip out or almost slip out of the carrier. In a few of these incidents, the consumer also expressed concern about the potential risk of strangulation if the child were to get trapped in the process of slipping out through the opening. This category included four head and face injuries resulting from falls.

CPSC staff began working with ASTM to update the leg opening test in the F2549-09a standard in spring 2013. This test required the carrier to be adjusted to the smallest leg opening, and then a 7-pound, 16.5-inch circumference test sphere is placed in the carrier. The carrier is then tilted over a period of 5 seconds so that the leg opening of the carrier is horizontal. Then the carrier is held in this position for an additional minute. The test is repeated for the other leg opening. To pass the test, the sphere must not pass through either leg opening.

Staff collected 10 carriers from a variety of suppliers and tested all of them to the leg opening requirement found in ASTM F2549-09a. Staff found that all 10 carriers passed the requirement, as specified in ASTM F2549-09a.

Knowing that there were recent incident reports, staff looked at the test and developed modifications that would make the test more realistic to user conditions. During testing to this modified test, staff found that four of the 10 carriers failed the modified leg-opening test. In the modified test, instead of being adjusted to the smallest leg opening, carriers were fitted around a 6-month CAMI dummy. One of the carriers that failed the modified test was involved with the recent incident reports of children falling through leg openings.

Following the testing, staff worked with an ASTM task group to develop language for the modified test. Following the ASTM task group work, ASTM balloted a revised test procedure, which subsequently passed. Accordingly, the revised test was included in the revised standard, F2549-13, which was approved on November 1, 2013.

In this revised leg-opening test method, a CAMI infant dummy Mark II is placed into the frame carrier, per the manufacturer's instructions. All restraint harnesses are fastened and all adjustment straps are tightened. The seat height is adjusted per the manufacturer's instructions for use with a 6-month-old child; or if there are no instructions provided, the seat height is adjusted so that the CAMI dummy's chin is resting right above the edge of the frame carrier. The waist restraint is adjusted so that when a force of two pounds is applied to the restraint webbing, a space, anywhere between ¼- and ½-in. will be created between the waist restraint and the CAMI dummy. This tightening step is repeated for any other adjustment straps and helps ensure that the test is repeatable and consistent. Thereafter, while keeping all of the adjusting straps in the same position, the CAMI dummy is removed from the carrier and replaced with the test sphere. The carrier is then tilted over for a period of 5 seconds so that the leg opening of the carrier is horizontal. Then the carrier is held in this position for an additional minute. The test is repeated for the other leg opening.

With this recently revised leg-opening test method, staff believes that the current voluntary standard is adequate to address the leg-opening hazard.

Hazard Pattern 4- Restraints
There were two reported incidents of restraint inadequacy. One was a NEISS report, where no information about the carrier or the restraints usage is known. The other incident involved a carrier made in 2009. The current voluntary standard contains a performance requirement and a test procedure that is intended to address this hazard pattern.

The performance requirement states:

> 6.5 *Retention System:*
> 6.5.1 A retention system, including a shoulder restraint, shall be provided to secure the occupant in a seated position in any of the manufacturer's recommended use positions when tested in accordance with 7.5.
> 6.5.2 Before shipment, the manufacturer shall attach the retention system in such a manner that it will not detach in normal usage.
> 6.5.3 If the retention system includes a crotch restraint designed to work with a lap belt, it shall be designed such that its use is mandatory when the retention system is in use.

The retention system test procedure (section 7.5 of the standard) has three basic parts. In the first part, a 45-lbf (pound-force) is applied gradually to a single attachment point of the retention system for 5 seconds and held for an additional 10 seconds.

The second part uses a CAMI infant dummy Mark II that is placed in the carrier, with the restraint system secured. Then, 45-lbf is applied horizontally on the centerline of either leg of the dummy. The force is applied gradually for 5 seconds and held for an additional 10 seconds. This process is repeated five times.

For the third part of the test procedure, the carrier, containing the CAMI dummy, is lifted and rotated backwards 360° about the axis of the intersection of the seat back and bottom. The rotation is paused 1 second every 90°. The carrier is then rotated 360° around the axis of the side edge of the seat bottom. The rotation is paused 1 second every 90°.

Staff believes that the intent of the first two parts of the test procedure is to help prevent the retention system and its fasteners from breaking, disengaging, or separating at any seams. In addition, staff believes that the third part of the test procedure is done to prevent the CAMI dummy from falling out of the carrier. However, these pass/fail criteria are not mentioned explicitly in the performance requirement section. Staff does not know why the performance requirement criteria are missing; but this is an obvious oversight in the standard. Thus, staff believes this oversight should be corrected.

Staff reviewed the European standard for similar products (see the following section for more information on that standard) and also the relevant sections from other ASTM standards, such as the high chair standard, which contain similar restraint requirements. Staff also consulted with two testing laboratories and the ASTM subcommittee chairman when developing the wording for this requirement. The goal was to use currently accepted wording from existing standards, when possible, and to write a requirement that would express the intent as discussed above. The resulting new language requires that buckles or other closing fasteners shall not break, disengage, or separate and that all fasteners shall not become damaged to the point that the restraint system cannot function as a result of the test. In addition, the recommended language requires that the CAMI dummy does not fall out of the carrier.

Staff's recommended modification to the ASTM standard, to revise the retention system performance requirement, is as follows (strikeout represents removed text, underline represents added text):

> 6.5 *Retention System:*
> 6.5.1 A retention system, including a shoulder restraint, shall be provided to secure the occupant in a seated position in any of the manufacturer's recommended use positions ~~when tested in accordance with 7.5~~.
> 6.5.2 Before shipment, the manufacturer shall attach the retention system in such a manner that it will not detach in normal usage.
> 6.5.3 If the retention system includes a crotch restraint designed to work with a lap belt, it shall be designed such that its use is mandatory when the retention system is in use.
> 6.5.4 When tested in accordance with 7.5, the restraint system and its closing means (for example, a buckle) shall not break, disengage or separate at any seam and all fasteners shall not release or suffer damage that impairs the operation and function of the restraint system. At the end of the tests, the CAMI dummy shall not be released fully or fall out of the carrier.

IV. OTHER STANDARDS

ESME staff found one international standard, EN 13209-1:2004, *European/British Standard for Child use and care articles- Baby carriers- Safety requirements and test methods- Part 1: Framed back carriers*, which addresses frame child carriers in a fashion similar to ASTM F2549-14.

Although there are differences, CPSC staff believes that the ASTM standard is more stringent in most areas and addresses the hazard patterns seen in the incident data. The exception is the test requirement for the retention system. The EN standard has clear pass/fail requirements for restraint performance, but the ASTM standard does not. Some of staff's recommended language for the modification to the retention system performance requirement has been taken from the EN standard.

The table below shows the relevant differences between the two standards.

Test	EN 13209-1:2004	ASTM F2549-14
Leg Opening	*Secure dummy in carrier with retention system. *Place a 30-mm cuboid spacer block on each shoulder of dummy. Then tighten shoulder strap and remove spacer. *Rotate carrier 360° @ 4 r/min in a forward and reverse direction 3 times in each direction. *Reposition dummy to initial position without altering adjusters on system.	*Shall not permit the passage of a test sphere when adjusted with a webbing tension device around 6-month CAMI dummy.
Dynamic Test	*Place 33-pound sand bag or max recommended child weight in the seat on a test torso and complete 50,000 cycles where the torso moves with amplitude of 120 mm @ 2 Hz.	*Place 40-pound weight or the maximum manufacturer's recommended weight, in the seat on a test torso and complete 50,000 cycles where the torso moves with amplitude of 4.7 inches @ 2 Hz. *Then place the carrier with the weight on a horizontal surface and lift the weight 3 vertical inches from the seat and drop it 500 times. *The carrier shall not create a hazardous condition, such as frame or fasteners breaking or

Test	EN 13209-1:2004	ASTM F2549-14
		disengaging or seams separating.
Static Load	None	*Fasten carrier to test torso with a 6-in. standard weld cap, center weight equal to 3 x maximum recommended weight in the seat (including cap). *Gradually apply weight within 5 s and maintain for 1 additional min. *Repeat test on concrete floor covered with 1/8-in thick vinyl floor. * The carrier shall not create a hazardous condition, such as frame or fasteners breaking or disengaging or seams separating.
Stability Test	*Place test mass of 33 pounds or maximum recommended weight of child in carrier. Place carrier facing (forward; back; right angle) on 12° platform covered with grade 80 aluminum oxide paper with 20 mm rectangular stops on platform.	*Place carrier on 12° inclined plane in highest use position. *Place stop on plane against carrier, to prevent carrier from moving but not tipping. *Place CAMI infant dummy Mark II with a 23-lb. weighted vest in carrier (total of at least 40 pounds). *Position carrier in most unstable orientation. *The carrier shall not tip over.
Retention System	*Secure dummy in carrier with retention system. *Place a 30 mm cuboid spacer block on each shoulder of dummy. Then tighten shoulder strap and remove spacer. *Rotate carrier 360° @ 4 r/min in a forward and reverse direction 3 times in each direction. *Reposition dummy to initial position without altering adjusters on system.	*Secure carrier on horizontal plane so it cannot move. *Apply 45 lb. to single attachment point of retention system in normal use directions (gradually apply force within 5 sec and hold for 10 additional sec). *Secure CAMI infant dummy Mark II in carrier. *Apply 45 lb. pull force horizontally on centerline of either leg of dummy at the ankle (gradually apply force

Test	EN 13209-1:2004	ASTM F2549-14
	*A tensile force of 200 N should be gradually applied to the straps either side of the fastener. Maintain this force for 1 min. *The dummy shall not fall completely out of the restraint system. The attachment of the restraint system shall not break, deform, work loose, or become torn/displaced. Fasteners shall not be released or have suffered damage which impairs their operation and function.	in 5 sec and hold for 10 more sec). *Repeat 5 times with 5 seconds max in between trials. *Release carrier from test plane. *Reposition CAMI infant dummy Mark II without adjusting retention system. *Lift carrier and rotate it backwards 360° around axis of seat back and bottom. Hesitate rotations 1 sec every 90°. *Rotate carrier 360° around axis of side edge and seat bottom. Hesitate rotation 1 sec every 90°.

V. RECOMMENDATIONS

ESME staff recommends that the Commission propose to incorporate by reference ASTM F2549-14 as the mandatory safety standard for frame child carriers, with one modification to the retention system performance requirement. Staff recommends adding a new requirement that details the pass/fail criteria associated with the retention system performance test. The language was developed after consulting with test laboratories and the recommended modified language is similar to the EN standard and other ASTM standards with similar requirements. Staff recommends this modification because, as currently written, the ASTM standard does not contain any pass/fail criteria associated with the test. Staff believes that the standard should contain criteria to determine whether the restraint system complies with the performance requirements. The exact wording of staff's recommendation is as follows (strikeout represents removed text, underline represents added text):

> 6.5 *Retention System:*
> 6.5.1 A retention system, including a shoulder restraint, shall be provided to secure the occupant in a seated position in any of the manufacturer's recommended use positions ~~when tested in accordance with 7.5~~.
> 6.5.2 Before shipment, the manufacturer shall attach the retention system in such a manner that it will not detach in normal usage.
> 6.5.3 If the retention system includes a crotch restraint designed to work with a lap belt, it shall be designed such that its use is mandatory when the retention system is in use.
> 6.5.4 When tested in accordance with 7.5, the restraint system and its closing means (for example, a buckle) shall not break, disengage or separate at any seam

and all fasteners shall not release or suffer damage that impairs the operation and function of the restraint system. At the end of the tests, the CAMI dummy shall not be released fully or fall out of the carrier.

TAB C: Health Sciences Assessment of Frame Child Carrier Injuries

UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
4330 EAST WEST HIGHWAY
BETHESDA, MARYLAND 20814

Memorandum

Date: December 30, 2013

TO : Patricia L. Edwards
Frame Child Carriers Project Manager
Division of Mechanical Engineering
Directorate for Engineering Sciences

THROUGH: Mary Ann Danello, Ph.D., Associate Executive Director
Directorate for Health Sciences

Jacque Ferrante, Ph.D., Director
Division of Pharmacology and Physiology Assessment

FROM : Stefanie Marques, Ph.D., Physiologist
Division of Pharmacology and Physiology Assessment

SUBJECT : Health Sciences Assessment of Frame Child Carrier Injuries

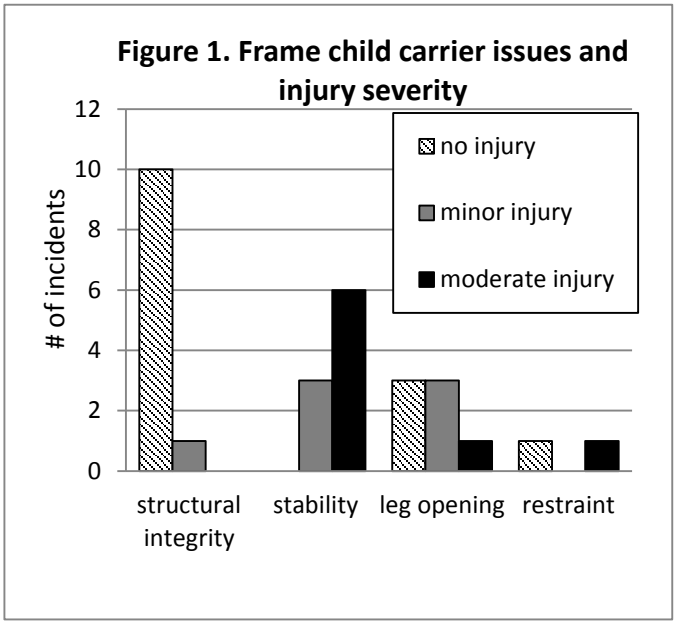
Introduction

In accordance with section 104 of the CPSIA, this memorandum provides health sciences information on injuries associated with the use of frame child carriers. Staff searched four CPSC databases covering the period from January 1, 2003 through October 27, 2013, for incidents involving frame child carriers.[10] There were 47 incidents related to frame child carriers that involved children 3 years old or younger. Of the 47 reported incidents, 33 resulted in an injury, and there were no fatalities. Due to the insufficient number of emergency department-treated injuries associated with frame child carriers, a reportable national estimate could not be determined, and the emergency department injuries were included in the total count of reported incidents. The majority of the injuries were the result of falls from the frame child carrier.

Discussion

Health Sciences **(**HS) staff reviewed the 47 reported incidents associated with frame child carriers. Twenty-nine of these were attributed to product-related issues, which includes 15 of the 33 injuries. The major issues involving frame child carriers were structural integrity (11 incidents); stability (9 incidents); leg openings (7 incidents); and restraints (2 incidents) (Figure 1).

[10] Chowdhury, Risana, "Frame Child Carrier-Related Deaths, Injuries, and Potential Injuries; January 1, 2003–October 27, 2013," November 18, 2013.



Although structural integrity issues, such as failure of the carrier's cloth components, loose frame screws, and frame breakage resulted in the most incidents, only one child suffered a minor abrasion injury. Stability issues that involved frame child carriers falling from elevated surfaces or tipping over on ground-level surfaces resulted in nine injuries, the most of any category. In six of the stability related cases, the victims sustained moderate head injuries, with none requiring hospitalization.[11] Four of the seven leg opening incidents, which involved a child almost slipping or completely slipping through leg holes that were too large to contain the child, resulted in an injury; three of the injuries were minor, such as bruises and abrasions to the face. One injury was moderate and involved a concussion and a perforated ear drum not requiring hospitalization. Restraint issues that involved the child sliding out of the top of the frame carrier when the caregiver bent over, resulted in one moderate head injury that did not require hospitalization.

Conclusion

The major cause of the more serious injuries sustained in the frame child carrier incidents was related to stability and leg opening issues, which resulted in children falling from the product and sustaining moderate head injuries.

In incidents that involved stability issues, the caregiver was no longer wearing the frame child carrier and placed the carrier with the child still inside it on an elevated surface or on the ground; when the carrier fell or tipped over, the child fell with the carrier and sustained an injury. All of the stability issue incidents were NEISS incidents. Therefore, there is very little information regarding the age of the product and whether the kickstand was used properly when the incident occurred. Because there were a low number of incidents involving stability issues, staff agrees that the stability test and the requirement that carriers include a warning label advising consumers not to use the product on elevated surfaces, as stated in the current voluntary

[11] There are no additional details on these injuries due to the limited information in the reports.

standard, sufficiently addresses this issue and reduces the likelihood that the product would fall or tip over from elevated surfaces or on the ground, resulting in a serious injury.

In incidents that involved leg opening issues while the caregiver was wearing the frame child carrier, the child almost slipped or did slip through a leg opening that was too large, and the child fell to the ground, sustaining an injury. The frame carriers involved in these leg opening incidents would fail the recent updates to the frame child carrier leg opening requirements and would require that the design of those carriers be improved to pass the current standard. Therefore, HS staff agreess that the recent updates in the frame child carrier leg opening requirements[12] should adequately address this issue and will reduce the likelihood of a child slipping through the leg openings and sustaining serious injuries.

[12] Lee, Kevin, "Staff's Review and Evaluation of ASTM F2549-14, *Standard Consumer Safety Specification for Frame Child Carriers*, for Incorporation by Reference into Staff's Draft Proposed Rule."

TAB D: Durable Nursery Products: Summary of Frame Child Carriers Product Safety Recalls and Associated Injuries from January 1, 2003 to October 27, 2013

TAB D

UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
4330 EAST WEST HIGHWAY
BETHESDA, MARYLAND 20814

Memorandum

December 31, 2013

TO : Patricia L. Edwards, Frame Child Carriers Project Manager
Division of Mechanical Engineering, Directorate for Engineering Sciences

THROUGH: Ray M. Aragon, Assistant Executive Director, EXC
Mary F. Toro, Director of Regulatory Enforcement, CRE
Troy Whitfield, Lead Compliance Officer, Mechanical Hazards Team

FROM : Julio Alvarado, Compliance Officer, Mechanical Hazards Team

SUBJECT : Durable Nursery Products: Summary of Frame Child Carriers Product Safety Recalls and Associated Injuries from January 1, 2003 to October 27, 2013

Purpose

This memorandum provides compliance information relevant for drafting a proposed safety standard for frame child carriers. Section 104 of the Consumer Product Safety Improvement Act of 2008, Public Law No. 110-314, 122 Stat. 3016 (August 14, 2008) (CPSIA), also known as the Danny Keysar Child Product Safety Notification Act, requires the U.S. Consumer Product Safety Commission (CPSC or the Commission) to examine and assess the effectiveness of any voluntary safety standard for durable infant and toddler products, which includes frame carriers, and issue mandatory standards that are substantially the same or more stringent than such voluntary standard. CPSC staff has prepared a proposed rule for a frame carrier standard for Commission consideration. The proposed rule addresses the hazards associated with frame carriers through structural integrity, stability, leg opening, and restraint requirements. This memorandum summarizes the product safety recalls stemming from defect investigations conducted by the CPSC Office of Compliance and Field Operations (Compliance) and the reported injuries involving frame carriers.

Compliance Investigation Information

Compliance staff reviewed the recalls and related press releases on frame child carriers from January 1, 2003 to October 27, 2013. During that time, there have been a total of two consumer-level recalls involving frame carriers.

Baby Trend, Inc., conducted a recall involving back pack carrier style numbers 2512 and 2592LX on March 27, 2007. The Baby Trend Back Pack Carriers were sold from March 2002 through November 2006, and involved about 4,000 units. The frame carriers are made of heavy-

duty nylon with a lightweight steel frame. Baby Trend received one report of a child falling out of the carrier and 17 reports of the shoulder straps loosening from the body of the carrier. Consumers were instructed to contact Baby Trend for return instructions and a free replacement.

On October 20, 2011, a recall conducted by Lifemarque involved about 40 LittleLife Discoverer Child Carriers, sold from January 2011 through July 2011. These frame carriers are green and grey with a black metal frame. These carriers were sold without the bolts that attached the carrier's main frame to the metal stand, posing a fall hazard to the child in the carrier. Consumers were asked to check the frame carrier to make sure there were two bolts on each side where the carrier's main frame attaches to the metal stand. If the bolts were missing, consumers were asked to contact LittleLife for a free replacement.

TAB E: Initial Regulatory Flexibility Analysis of the Staff-Recommended Proposed Standard for Frame Child Carriers and the Accreditation Requirements for Conformity Assessment Bodies for Testing Conformance to the Frame Child Carrier Standard

TAB E

UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
4330 EAST WEST HIGHWAY
BETHESDA, MARYLAND 20814

Memorandum

Date: March 1, 2014

TO : Patricia L. Edwards
Project Manager, Frame Carriers
Division of Mechanical Engineering
Directorate for Engineering Sciences

THROUGH: Gregory B. Rodgers, Ph.D.
Associate Executive Director
Directorate for Economic Analysis

Deborah V. Aiken, Ph.D.
Senior Staff Coordinator
Directorate for Economic Analysis

FROM : Jill L. Jenkins, Ph.D.
Economist
Directorate for Economic Analysis

SUBJECT : Initial Regulatory Flexibility Analysis of the Staff-Recommended Proposed Standard for Frame Child Carriers and the Accreditation Requirements for Conformity Assessment Bodies for Testing Conformance to the Frame Child Carrier Standard

Introduction

In accordance with section 104 of the Consumer Product Safety Improvement Act (CPSIA), staff recommends that the Commission issue a proposed rule for frame child carriers, as described in the briefing memorandum. The CPSC frame child carriers team officially began reviewing the voluntary standard and consulting "with representatives of consumer groups, juvenile product manufacturers, and independent child product engineers and experts" in April 2012, per the requirements in section 104 of the CPSIA. The consultation process resulted in two changes to the voluntary standard, ASTM F2549:

1. The leg opening test was revised to address incidents where children have fallen out the side of frame child carriers (added in version F2549-13).
2. The definition of a "frame child carrier" was revised to include carriers rated for weights up to 50 pounds, which better reflects the existing market for frame child carriers; this revision included modifying the dynamic strength test to accommodate the greater weight (added in version F2549-14).

CPSC staff recommends that the Commission incorporate by reference the most recent ASTM standard for frame child carriers, ASTM F2549-14, which includes the two changes described above and one modification, which will be considered in April 2014 by ASTM for inclusion in the voluntary standard. Staff recommends that the Commission's proposed mandatory standard include specific pass/fail criteria for the existing retention system performance requirement.[13]

This memorandum evaluates the potential economic impact of the staff-recommended frame child carrier standard on small entities, including small businesses, as required by the Regulatory Flexibility Act (RFA). Section 603 of the RFA requires that agencies prepare an initial regulatory flexibility analysis (IRFA) and make it available to the public for comment when the general notice of proposed rulemaking is published. The IRFA must describe the impact of the proposed rule on small entities and identify any alternatives that may reduce the impact. Specifically, the IRFA must contain:

1. a description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply;
2. a description of the reasons why action by the agency is being considered;
3. a succinct statement of the objectives of, and legal basis for, the proposed rule;
4. a description of the projected reporting, recordkeeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities subject to the requirements and the type of professional skills necessary for the preparation of reports or records; and
5. an identification, to the extent possible, of all relevant federal rules which may duplicate, overlap, or conflict with the proposed rule.

The Product

"Frame child carriers" are defined in ASTM F2549-14, *Standard Consumer Safety Specification for Frame Child Carriers*, as "a product, normally of sewn fabric construction on a tubular metal or other frame, which is designed to carry a child, in an upright position, on the back of the caregiver." Based on a market review conducted during the voluntary standard evaluation process, the definition was expanded to include frame child carriers intended to accommodate children from 16 pounds to 50 pounds (the limit had been 40 pounds) in an unassisted, upright position. The child is carried suspended from both of the adult wearer's shoulders in a forward- or rear-facing position. This type of carrier is often used for hiking and typically resembles hiking/mountaineering backpacks not intended to be used for child transport.[14]

[13] The precise language for the pass/fail criteria can be found in the Directorate for Engineering Sciences (ES) memorandum. Memorandum from Kevin Lee, Division of Mechanical Engineering, Directorate for Engineering Sciences, dated February 16, 2014, Subject: Staff's Review and Evaluation of ASTM F2549-14, *Standard Consumer Safety Specification for Frame Child Carriers*, for Incorporation by Reference into Staff's Draft Proposed Rule.

[14] Staff has identified one new product on the U.S. market that would likely be covered by ASTM F2549-14 but does not closely resemble a hiking backpack.

The Market for Frame Child Carriers

We conducted an extensive review of the frame child carrier market as part of the IRFA. Frame child carriers available in the United States were identified via web searches, particularly of on-line retailers and known suppliers of other durable infant and toddler products. Suppliers were identified for each of the frame child carriers and each firm was investigated to determine its size, type, location, and sales revenue, as well as each firm's complete product line and ASTM compliance. Additionally, we selected a representative sample of these firms and contacted the maximum allowable under the Paperwork Reduction Act (PRA).[15] Firms were asked a variety of questions, including whether their products comply with the ASTM voluntary standard, the impact that a mandatory standard would have on their firm, and the cost of testing to the voluntary standard.

Based on this research, staff identified 15 firms supplying frame child carriers to the U.S. market, although additional firms may supply these products to U.S. consumers. Most of these firms specialize in the manufacture and/or distribution of one of two distinct types of products: (1) children's products, including durable nursery products; or (2) outdoor products, such as camping and hiking gear. The majority of the 15 known firms are domestic (including four manufacturers, seven importers, and one firm whose supply source could not be determined). The remaining three firms are foreign (including two manufacturers and one firm that imports products from foreign companies and distributes the products from outside of the United States).[16]

Staff expects that the frame child carriers of seven of these firms are compliant with ASTM F2549 because the firms either: (1) have their carriers certified by the Juvenile Products Manufacturers Association (JPMA) (two firms); or (2) claim compliance with the voluntary standard (five firms).[17] However, some of the suppliers of frame carriers do not supply any other children's products; and it is possible that these suppliers may be unfamiliar with the voluntary ASTM standards, a circumstance confirmed by one supplier that staff contacted. Staff unsuccessfully attempted to obtain information from one of the two firms whose frame child carriers do not comply with the ASTM standard regarding the extent to which their carriers do not comply.

[15] According to the Office of Management and Budget (OMB) guidance implementing the PRA (5 C.F.R. 1320), "ten or more persons" would amount to an information collection requiring OMB review and approval. Therefore, we are limited to a maximum of 9 firms (5 C.F.R. 1320.3(c)(4)). However, 5 C.F.R. 1320.3(c)(4)(2) states that "Any collection of information addressed to all or a substantial majority of an industry is presumed to involve ten or more persons." In the case of frame child carriers, nine firms does not represent all or a substantial majority of the industry. Therefore, staff attempted to contact nine firms for information to support the IRFA.

[16] Staff made these determinations using information from Dun & Bradstreet and ReferenceUSAGov, as well as firm websites.

[17] JPMA typically allows 6 months for companies with products in their certification program to shift to a new standard for testing and certification once the new standard is published. The version of the standard that firms currently are likely to be testing to is ASTM F2549-09a. Two revisions of the standard have been published since then, but neither will become effective for JPMA certification purposes before May 2014. However, many frame carriers are expected to be compliant with ASTM F2549-13 and F2549-14 without modification; and firms compliant with earlier versions of the standard are likely to remain compliant as the standard evolves.

Staff approximated annual sales of frame child carriers from the 2005 survey conducted by the American Baby Group (*2006 Baby Products Tracking Study*).[18] According to this survey, 32 percent of new mothers owned a frame child carrier. Approximately 32 percent of those carriers were handed down or purchased secondhand,[19] and about 68 percent were new when acquired. This information suggests annual sales of around 870,000 frame child carriers (.32 x .68 x 4 million births per year),[20] typically costing from $100 to around $300.

Staff could not estimate annual injuries because the number of National Electronic Injury Surveillance System (NEISS) cases was insufficient to meet the CPSC Directorate for Epidemiology (EPI) publication criteria. However, given that part of the publication criteria is that the estimate must be 1,200 or greater over the period under consideration, presumably, there would be, on average, fewer than 120 injuries annually over the approximately 10-year period considered by EPI staff.[21]

Based on the CPSC injury data[22] and discussions with CPSC's Human Factors staff, it appears that frame child carriers are generally used for about the first 3 years of a child's life, although not generally during the child's first 6 months because a child is unable to hold up its head unassisted before then. Based on data from the 2006 Baby Products Tracking Study, approximately 3.8 million frame child carriers are owned by new mothers; but given that about one-sixth of those are likely owned by new mothers with children unable to use them yet (six months represents one-sixth of three years), only 3.2 million of those carriers might be involved in injury incidents. Therefore, the injury rate would be less than about 0.38 emergency department-treated injuries per 10,000 frame child carriers available for use in the households of new mothers ((120 injuries ÷ 3.2 million frame child carriers in households of new mothers) x 10,000).

Reason for Agency Action and Legal Basis for the Draft Proposed Rule

The Danny Keysar Child Product Safety Notification Act requires the CPSC to promulgate a mandatory standard for frame child carriers that is substantially the same as, or more stringent than, the voluntary standard. Since the voluntary frame child carrier standard's inception, CPSC staff has worked with ASTM to review and assess ASTM F2549 in general. More recently, staff helped develop the revised leg opening and dynamic strength tests that have been added to ASTM F2549 since the staff review and consultation process commenced in April 2012.[23]

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[18] The data collected for the *Baby Products Tracking Study* do not represent an unbiased statistical sample. The sample of 3,600 new and expectant mothers is drawn from American Baby magazine's mailing lists. Additionally, because the most recent survey information is from 2005, the data may not reflect the current market.

[19] The data on secondhand products for new mothers were not available. Instead, data for new mothers and expectant mothers were combined and broken into data for first-time mothers and data for experienced mothers. Data for first-time mothers and experienced mothers have been averaged to calculate the approximate percentage of products that were handed down or purchased secondhand.

[20] U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (CDC), National Center for Health Statistics, National Vital Statistics System, "Births: Final Data for 2010," *National Vital Statistics Reports* Volume 61, Number 1 (August 28, 2012): Table 1. The number of births in 2010 is rounded from 3,999,386.

[21] Memorandum from Risana T. Chowdhury, Division of Hazard Analysis, Directorate for Epidemiology, dated November 18, 2013, Subject: Frame Child Carriers-Related Deaths, Injuries, and Potential Injuries; January 1, 2003 – October 27, 2013.

[22] Ibid.

[23] Lee, 2013.

CPSC staff also has consulted with the ASTM subcommittee chair on the proposed modification to the voluntary standard, which will soon be considered by the ASTM subcommittee for inclusion in the voluntary standard.

Requirements of the Proposed Rule

CPSC staff recommends adopting the voluntary ASTM standard for frame child carriers (F2549-14), with the addition of specific pass/fail criteria for the restraint system test procedure. The pass/fail criteria were developed based on test procedures currently in use at laboratories, as well as language from the European/British (EN) standard. For this reason, staff does not believe that the staff-recommended proposed standard will have any impact on firms with ASTM-compliant frame child carriers that maintain compliance with ASTM standards as the voluntary standards evolve. These pass/fail criteria are expected to be discussed at the next ASTM subcommittee meeting in April 2014.

However, firms whose carriers do not comply will need to evaluate their products, determine what changes would be required to meet the standard, and decide how to proceed. Noncompliant products would need to be pulled from the U.S. market or modified to meet the ASTM standard F2549-14 with the staff-recommended pass/fail criteria for retention systems (which soon may become part of the ASTM standard). Some of the more significant requirements from ASTM F2549-14 are presented below, with changes that were made since the staff review and consultation process began in April 2012, as well as the staff-recommended change, noted in italics:

- Locking and latching mechanisms—intended to prevent unintentional folding of the carrier while in use.
- Unintentional folding—intended to prevent unintentional folding of any stand designed to keep the carrier upright while standing freely.
- Leg openings—intended to prevent smaller children from slipping through a single leg opening. *This requirement was modified for version F2549-13 to, among other changes, mimic real-world adjustments better by using a CAMI infant dummy as an occupant surrogate. One firm whose frame child carriers required changes to meet the modified test procedure indicated redesign and retooling costs of $1,000 total. Another put the total cost at $100,000−$120,000, paid to their supplier over time through a series of purchase agreements.*
- Dynamic strength—along with the static load requirements, intended to prevent breaks/disengagement of the frame or fasteners, seam separation, or retention system slippage during use. *This was modified for version F2549-14 to accommodate the manufacturer's recommended maximum weight; prior versions of the standard used a 40-pound weight for the test procedure, regardless of whether the carrier was intended to accommodate heavier children.*
- Static load— along with the dynamic strength requirements, intended to prevent breaks/disengagement of the frame or fasteners, seam separation, or retention system slippage during use.

- Stability—intended to prevent carriers with stands designed to keep the carrier upright from tipping over while standing freely.
- Retention systems—such systems, including shoulder restraints, are required and must be attached prior to shipment. *There are no pass/fail criteria in the most recent version of the standard, which is what the staff-recommended modification would address.*
- Handle integrity—intended to prevent the frame or handle from breaking, disengaging, or separating during use.

The voluntary standard also includes: (1) torque and tension tests to ensure that components cannot be removed; (2) requirements to prevent entrapment and cuts (minimum and maximum opening size, coverage of exposed coil springs, small parts, hazardous sharp edges or points, smoothness of wood parts, and edges that can scissor, shear, or pinch); (3) marking and labeling requirements; (4) requirements for the permanency and adhesion of labels; (5) requirements for instructional literature; and (6) toy accessory requirements. ASTM F2549-14 includes no reporting or recordkeeping requirements.

Other Federal or State Rules

There are two federal rules that would interact with the frame child carrier mandatory standard: (1) *Testing and Labeling Pertaining to Product Certification* (16 C.F.R. part 1107); and (2) *Requirements Pertaining to Third Party Conformity Assessment Bodies* (16 C.F.R. part 1112).

The testing and labeling rule (16 C.F.R. part 1107) requires that manufacturers of children's products subject to product safety rules certify, based on third party testing, that their children's products comply with all applicable safety rules. Because frame child carriers will be subject to a mandatory children's product safety rule, they will also be subject to the third party testing requirements, including record keeping, at the time when the frame child carrier rule becomes effective.

In addition, the 16 C.F.R. part 1107 rule requires the third party testing of children's products to be conducted by CPSC-accepted laboratories. Section 14(a)(3) of the Consumer Product Safety Act (CPSA) requires the Commission to publish a notice of requirements (NOR) for the accreditation of third party conformity assessment bodies (*i.e.*, testing laboratories) to test for conformance with each children's product safety rule. Existing NORs that have been issued by the Commission are listed in 16 C.F.R. part 1112. Consequently, staff recommends that the Commission propose an amendment to 16 C.F.R. part 1112 that would add the frame child carrier rule to the list of rules for which the Commission has issued an NOR.

Impact on Small Businesses

There are approximately 15 firms currently known to be marketing frame child carriers in the United States, 12 of which are domestic. Under U.S. Small Business Administration (SBA)

guidelines, a manufacturer of frame child carriers is categorized as small if the entity has 500 or fewer employees, and importers and wholesalers are considered small if they have 100 or fewer employees. We limited our analysis to domestic firms because SBA guidelines and definitions pertain to U.S.-based entities. Based on these guidelines, about nine of the identified 15 firms are small—three domestic manufacturers, five domestic importers, and one domestic firm with an unknown supply source. There may be additional unknown small domestic frame child carrier suppliers operating in the U.S. market.

Prior to the preparation of a regulatory flexibility analysis, staff conducts a screening analysis in order to determine whether a regulatory flexibility analysis or a certification statement of no significant impact on a substantial number of small entities is appropriate for a proposed rule. The SBA gives considerable flexibility in defining the threshold for "no significant economic impact." However, staff typically uses 1 percent of gross revenue as a threshold; unless the impact is expected to fall below the 1 percent threshold for the small businesses evaluated, staff prepares a regulatory flexibility analysis.[24] Because we were unable to demonstrate that the draft proposed rule would impose an economic impact less than 1 percent of gross revenue for the affected firms, staff does not recommend certification for this rule.[25] Instead, we conducted an Initial Regulatory Flexibility Analysis.

The impact of the staff-recommended proposed rule on the domestic manufacturers and importers considered to be small depends upon two factors: (1) whether, and the degree to which, their frame child carriers comply with the voluntary standard; and (2) the importance of frame child carriers to the firm's overall product line. The effect of these two factors on small manufacturers and small importers is discussed below.

Small Manufacturers

Of the three small domestic manufacturers, the staff-recommended proposed rule is likely to have little or no impact on the two whose frame child carriers are compliant with the ASTM voluntary standard currently in effect for JPMA testing and certification purposes (F2549-09a). These firms are anticipated to remain compliant with the voluntary standard as it changes because they follow, and in at least one case, participate actively in the voluntary standard development process. Therefore, compliance with the evolving voluntary standard is part of an established business practice. ASTM F2549-14, the version of the voluntary standard upon which the staff-recommended mandatory standard is based, will be in effect already for JPMA testing and certification purposes, before the mandatory standard becomes final; and these firms are likely to be in compliance based on their history. Because the staff-recommended

[24] The SBA provides several examples of screening measures, including the one percent of gross revenue measure. (see U.S. Small Business Administration, Office of Advocacy. *A Guide for Government Agencies: How to Comply with the Regulatory Flexibility Act and Implementing the President's Small Business Agenda and Executive Order 13272*. May, 2012, pp. 18−20. http://www.sba.gov/sites/default/files/rfaguide_0512_0.pdf).

[25] Staff has chosen the gross revenue measure because we generally have data to support its calculation. In addition, we use one percent rather than a higher threshold because we believe that it is cautious in the sense that we err on the side of preparing a regulatory flexibility analysis rather than incorrectly recommending certification. However, we note that firms in some industries could experience significant economic impacts beneath the one percent threshold.

modification to the retention system requirement consists of specifying pass/fail criteria already used by test laboratories, there are no expected impacts as a result of this modification. This modification is expected to be considered by ASTM for incorporation into the voluntary standard in April 2014.

The remaining small manufacturer would experience some economic impacts of unknown size. Based on discussions with a company representative, this firm does not know whether their products comply with the voluntary standard, having been previously unaware of its existence. However, the firm indicated that it might elect to discontinue production of its frame child carriers even if they prove to be compliant with the staff-recommended mandatory standard. The company believes that the burden associated with the testing and record-keeping requirements that would be triggered by a mandatory frame child carrier standard might exceed the value of continuing production. Although this firm produces many other products which should lessen the economic impact and indicated that frame child carriers do not represent a large portion of their product line, the firm did not convey the precise percentage of revenues that frame child carriers constitutes, and therefore we cannot rule out a significant economic impact.

Under section 14 of the CPSA, once the new frame child carrier requirements become effective, all manufacturers will be subject to the additional costs associated with the third party testing and certification requirements under the testing rule, *Testing and Labeling Pertaining to Product Certification* (16 C.F.R. part 1107). Third party testing will include any physical and mechanical test requirements specified in the final frame child carrier rule; lead and phthalates testing is already required. Third party testing costs are in addition to the direct costs of meeting the frame child carrier standard.

Staff contacted several firms regarding testing costs,[26] and one firm estimated that chemical and structural testing of one unit of a frame child carrier costs around $1,300.[27] No other firms were willing or able to supply the requested testing cost information. Estimates provided by suppliers for other section 104 rulemakings indicate that around 40 percent to 50 percent of testing costs can be attributed to structural requirements, with the remaining 50 percent to 60 percent resulting from chemical testing (*e.g.*, lead and phthalates). Therefore, staff estimates that testing to the ASTM voluntary standard could cost about $520 to $650 per sample tested ($1,300 x .4 to $1,300 x .5). These costs are consistent with testing cost estimates for products with standards of similar complexity. Staff welcomes comments regarding these testing costs and requests alternative estimates.

Staff's review of the frame child carrier market shows that, on average, each small domestic manufacturer supplies three different models of frame child carriers to the U.S. market annually. Therefore, if third party testing were conducted every year, third party testing costs for each manufacturer would be about $1,560 to $1,950 annually, if only one sample were tested for each model. Based on an examination of each small domestic manufacturer's revenues from recent Dun & Bradstreet or ReferenceUSAGov reports, the impact of third party testing to ASTM

[26] Because a maximum of nine contacts are allowed under the PRA, staff limited contacts to firms supplying frame child carriers. These firms would have information on testing costs as well as other potential impacts of the staff-recommended proposed rule. Test laboratories, on the other hand, would be limited to information on testing costs and might have no information at all if they do not test to the ASTM voluntary standard.
[27] Confidential email correspondence with a frame child carrier supplier.

F2549-14 is unlikely to be economically significant for the three small domestic manufacturers (*i.e.*, testing costs less than one percent of gross revenue). Although the testing and labeling rule (16 C.F.R. part 1107) is not explicit regarding the number of samples firms will need to test to meet the "high degree of assurance" criterion, more than 100 units per model would be required to make testing costs economically significant for the two firms with available revenue data. As described above, the third manufacturer has already indicated that it may exit the market because of the testing costs, even if their frame carriers meet the requirements of the voluntary standard.

Small Importers

As noted above, there are five small importers of frame child carriers, with three of them currently importing compliant carriers. In the absence of a mandatory regulation, these three small importers of frame child carriers would likely remain in compliance with new versions of the standard. Given that the three small importers have developed a pattern of compliance with the ASTM voluntary standard as it evolves and that the staff-recommended proposed rule does not differ substantively from the voluntary standard, ASTM F2549-14, as applied by test laboratories, the three small importers of compliant products would likely experience little or no direct costs if the staff recommendation was implemented.[28]

Whether there is a significant economic impact on the two small importers with noncompliant frame child carriers will depend upon the extent of the changes required to come into compliance and the response of their supplying firms. Because no small importers with noncompliant frame child carriers responded to requests for information, staff cannot estimate the precise economic impact on these firms.

However, in general, if their supplying firm comes into compliance, the importer could elect to continue importing the frame child carriers. Any increase in production costs experienced by their suppliers as a result of changes made to meet the mandatory standard may be passed on to the importers. If an importer is unwilling or unable to accept the increased costs, or if the importer's supplier decides not to comply with the mandatory standard, there are three alternatives courses of action available. First, the importer could find another supplier of frame child carriers. This could result in increased costs as well, depending, for example, on whether the alternative supplier must modify its carriers to comply with the mandatory standard. Second, the importer could import a different product in place of frame child carriers. This alternative would help mitigate the economic impact of the mandatory standard on these firms. Finally, the importer could stop importing frame child carriers and make no other changes to the importer's product line.

As with manufacturers, all importers will be subject to third party testing and certification requirements, and consequently, will be subject to costs similar to those for manufacturers if the importer's supplying foreign firm(s) does not perform third party testing. It does not appear likely that these costs would have a significant economic impact on the two small domestic importers for which revenue information is available, unless around 20 units per model were

[28] ASTM is expected to consider the staff-recommended modification for inclusion in the standard at the April 2014 meetings. However, this will not change the impact on frame child carrier firms because the staff-recommended pass/fail criteria is the same as what test labs are currently using.

required to be tested to provide a "high degree of assurance" (*i.e.,* at 20 units tested per model, testing costs will exceed one percent of gross revenue for each of these firms, even if testing costs are estimated at the lowest level of $520). The impact on the other three small importers is unknown.

Alternatives

Under the Danny Keysar Child Product Safety Notification Act, one alternative that generally reduces the impact on small entities is to make the voluntary standard mandatory with no modifications. However, in the case of frame child carriers, no difference in impact would be expected because the staff-recommended modification merely articulates the standard practice of test laboratories and only products that cannot meet the requirement without the modification would fail the requirement with the modification.

Another way that the Commission could reduce the economic impact of any proposed regulation, including the staff-recommended proposed frame child carrier rule, is to allow for a later effective date. Staff is recommending a 6-month effective date, which is the least amount of time frame child carrier firms familiar with the ASTM standard have indicated they would need for new product development (1.5 years was the upper estimate, with most firms suggesting a 6-month to 1-year time frame). Product redevelopment might be necessary for some noncompliant firms to meet the requirements of ASTM F2549-14, although staff does not believe that complete redesigns will be necessary based on preliminary product testing. No product modifications should be necessary to meet the staff-recommended pass/fail criteria for the retention system performance requirement because, as already mentioned, it only clarifies what is already being performed in the test labs. The Commission could opt to set a later effective date, more in line with the upper estimate, which would reduce the economic impact in two ways. One, firms are less likely to experience a lapse in production, which could result if they are unable to comply within the required timeframe. Two, firms could spread costs over a longer time period, thereby reducing their annual costs, as well as the present value of their total costs. In the case of frame child carrier firms, a longer effective date would primarily benefit firms with noncompliant products.

Small Business Impacts of the Accreditation Requirements for Testing Laboratories

In accordance with section 14 of the CPSA, all children's products that are subject to a children's product safety rule must be tested by a CPSC-accepted third party conformity assessment body (*i.e.,* testing laboratory) for compliance with applicable children's product safety rules. Testing laboratories that want to conduct this testing must meet the NOR pertaining to third party conformity testing. NORs have been codified for existing rules at 16 C.F.R. part 1112. Consequently, staff recommends that the Commission propose an amendment to 16 C.F.R. part 1112 that would establish the NOR for testing laboratories that want to test frame back carriers for compliance with the frame child carrier final rule. This section assesses the impact of the amendment on small testing laboratories.

A Final Regulatory Flexibility Analysis (FRFA) was conducted as part of the promulgation of the original 1112 rule (78 FR 15836, 15855-58), as required by the RFA. Briefly, the FRFA concluded that the accreditation requirements would not have a significant adverse impact on a substantial number of small laboratories because no requirements were imposed on laboratories that did not intend to provide third party testing services. The only laboratories that were expected to provide such services were those that anticipated receiving sufficient revenue from the mandated testing to justify accepting the requirements as a business decision.

Based on similar reasoning, amending 16 C.F.R. part 1112 to include the NOR for the frame child carrier standard will not have a significant adverse impact on small laboratories. Moreover, based upon the number of laboratories in the United States that have applied for CPSC acceptance of the accreditation to test for conformance to other juvenile product standards, we expect that only a few laboratories will seek CPSC acceptance of their accreditation to test for conformance with the frame child carrier standard. Most of these laboratories will have already been accredited to test for conformance to other juvenile product standards, and the only costs to them would be the cost of adding the frame child carrier standard to their scope of accreditation. As a consequence, the Commission could certify that the NOR for the frame child carrier standard will not have a significant impact on a substantial number of small entities.