



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

This document has been electronically  
 approved and signed.

**DATE:** June 20, 2018

**BALLOT VOTE SHEET**

**TO:** The Commission  
 Alberta E. Mills, Secretary

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

**FROM:** Patricia M. Pollitzer, Assistant General Counsel  
 Mary A. House, Attorney, OGC

**SUBJECT:** Final Rule: Safety Standard for Booster Seats

BALLOT VOTE DUE Tuesday, June 26, 2018

Staff is forwarding to the Commission a briefing package recommending that the Commission publish in the *Federal Register* the attached draft final rule concerning booster seats. Pursuant to section 104 of the Consumer Product Safety Improvement Act of 2008 (CPSIA), the draft final rule would incorporate by reference the voluntary standard, ASTM F2640-18, *Standard Consumer Safety Specification for Booster Seats*, as the mandatory federal safety standard for booster seats.<sup>1</sup> Additionally, the draft final rule amends the Commission’s regulation regarding third party conformity assessment bodies to include the mandatory standard for booster seats in the list of notices of requirements issued by the Commission. The Office of the General Counsel is providing the attached draft final rule for the Commission’s consideration.

Please indicate your vote on the following options:

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

\_\_\_\_\_  
 (Signature)

\_\_\_\_\_  
 (Date)

<sup>1</sup> A “booster seat” is a product that is placed on an adult chair to elevate a child to a standard dining table height. The standard does not include children’s seats intended for use in motor vehicles, which are also sometimes referred to as “booster seats.”

Consumer Hotline and General Information: 1-800-638-2772 ★ CPSC’s Web Site: <http://www.cpsc.gov>

II. Approve publication of the attached document in the *Federal Register*, with the specified changes:

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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 specified below:

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\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

Attachment: Draft *Federal Register* Notice: Final Rule for Safety Standard for Booster Seats

**DRAFT**

**Billing Code 6355-01-P**

**CONSUMER PRODUCT SAFETY COMMISSION**

**16 CFR Parts 1112 and 1237**

**[CPSC Docket No. 2017-0023]**

**Safety Standard for Booster Seats**

**AGENCY:** Consumer Product Safety Commission.

**ACTION:** Final rule.

**SUMMARY:** Pursuant to the Consumer Product Safety Improvement Act of 2008 (CPSIA), the U.S. Consumer Product Safety Commission (CPSC) is issuing this final rule establishing a safety standard for booster seats. The Commission is also amending its regulations regarding third party conformity assessment bodies to include the safety standard for booster seats in the list of notices of requirements (NORs).

**DATES:** This rule will become effective [INSERT DATE 18 MONTHS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. The incorporation by reference of the publication listed in this rule is approved by the Director of the Federal Register as of [INSERT DATE 18 MONTHS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**FOR FURTHER INFORMATION CONTACT:** Keysha Walker, Lead Compliance Officer, U.S. Consumer Product Safety Commission, 4330 East West Highway, Bethesda, MD 20814; telephone: 301-504-6820; e-mail: *kwalker@cpsc.gov*.

**SUPPLEMENTARY INFORMATION:**

**I. Background and Statutory Authority**

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

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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 of the CPSIA are to be “substantially the same as” the applicable voluntary standards or more stringent than the voluntary standard, if the Commission determines 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,” and the statute specifies 12 categories of products that are included in the definition, including various types of children’s chairs. Section 104(f)(2)(C) of the CPSIA specifically identifies “booster chairs” as a durable infant or toddler product. Additionally, the Commission’s regulation requiring product registration cards defines “booster seats” as a durable infant or toddler product subject to the registration card rule. 74 FR 68668 (Dec. 29, 2009); 16 CFR 1130.2(a)(3).

As required by section 104(b)(1)(A) of the CPSIA, the Commission consulted with manufacturers, retailers, trade organizations, laboratories, consumer advocacy groups, consultants, and the public to develop this rule, largely through the ASTM process. On May 19, 2017, the Commission issued a notice of proposed rulemaking (NPR) for booster seats.<sup>1</sup> 82 FR 22925. The NPR proposed to incorporate by reference the voluntary standard, without

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<sup>1</sup> Staff’s May 3, 2017 Briefing Package for the NPR (Staff’s NPR Briefing Package) is available at: [https://www.cpsc.gov/s3fs-public/Notice%20of%20Proposed%20Rulemaking%20-%20Booster%20Seats%20-%20May%203%202017.pdf?97pmoM5UAGyQBBPFtTPyvFu\\_RjCZMAwL](https://www.cpsc.gov/s3fs-public/Notice%20of%20Proposed%20Rulemaking%20-%20Booster%20Seats%20-%20May%203%202017.pdf?97pmoM5UAGyQBBPFtTPyvFu_RjCZMAwL).

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modification, developed by ASTM International, ASTM F2640-17<sup>e1</sup>, *Standard Consumer Safety Specification for Booster Seats* (ASTM F2640-17<sup>e1</sup>).

In this document, the Commission is issuing a final mandatory consumer product safety standard for booster seats. Since the NPR published, ASTM approved (April 1, 2018) and published (April, 2018) the current version of the voluntary standard for booster seats, ASTM F2640-18, *Standard Consumer Safety Specification for Booster Seats* (ASTM F2640-18), with three changes from the previous version:

- New performance and testing requirements for a new type of booster seat that hangs from the back of an adult chair;
- Clarification of the installation position for measuring a booster seat on an adult chair; and
- New warning statement in the instructional literature to address booster seats that do not have a reclined position.

As set forth in section IV.C.2 of this preamble, the Commission finds that each of these changes enhances the safety of booster seats.<sup>2</sup> Accordingly, after the Commission's review and consideration of the revised ASTM standard and the comments on the NPR, the final rule incorporates by reference, without modification, the most recent voluntary standard for booster seats, ASTM F2640-18.

Additionally, the final rule amends the list of notices of requirements (NORs) issued by the Commission in 16 CFR part 1112 to include the standard for booster seats. Under section 14 of the CPSA, the Commission promulgated 16 CFR part 1112 to establish requirements for accreditation of third party conformity assessment bodies (or testing laboratories) to test for

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<sup>2</sup> Tabs B and C of the June 20, 2018 Staff's Draft Final Rule for Booster Seats Under the Danny Keysar Child Product Safety Notification Act (Staff's Final Rule Briefing Package) explain and assess the new warning statement and the performance and testing requirements in the standard. The Staff's Final Rule Briefing Package is available at [\[INSERT LINK\]](#).

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conformity with a children's product safety rule. Amending part 1112 adds an NOR for the booster seat standard to the list of children's product safety rules.

### II. Product Information

#### A. Definition of "Booster Seat"

ASTM F2640-18 defines a "booster seat" as:

a juvenile chair, which is placed on an adult chair to elevate a child to standard dining table height. The booster seat is made for the purpose of containing a child, up to 5 years of age, and normally for the purposes of feeding or eating. A booster seat may be height adjustable and include a reclined position.

Booster seats may be constructed from a wide variety of materials, including wood, plastic, fabric, metal, and/or foam. Most booster seats, notably those intended for home use, have removable trays, allowing a table to be used as an alternative eating surface. Some booster seats are intended to double as floor seats for toddlers, and others are high chair/booster seat combination products. The ASTM standard covers combination products when the product is in a booster seat configuration.

The definition of "booster seat" in ASTM F2640-18 is broad and includes within the scope of the standard booster seats that are designed specifically for use in restaurants. Several suppliers sell these "food-service" booster seats directly to restaurants or through restaurant supply companies. Consumers also may purchase some of these products directly, for example, through online third parties that act as brokers between buyers and sellers. Consequently, consumers use food-service booster seats in homes and in restaurant establishments open to the public. The Commission agrees with the scope of ASTM F2640-18, and is not excluding food-service booster seats from the final rule.

The final rule for booster seats does *not* cover children's seats intended for use in motor vehicles, which are also sometimes referred to as "booster seats."

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### *B. Market Description*

CPSC staff identified 44 domestic firms supplying booster seats to the U.S. market. Thirty-four (34) domestic firms market their booster seats exclusively to consumers, while ten (10) domestic firms sell booster seats exclusively to restaurant or restaurant supply stores (usually through regional distributors or an internal portal). Sixteen of the 34 domestic firms that sell exclusively to consumers are compliant with the current voluntary standard for booster seats. Of the 10 domestic firms selling food-service booster seats, none are compliant with the ASTM voluntary standard. Of the 44 known domestic suppliers, 29 are domestic manufacturers (10 large and 19 small), 14 are domestic importers (five large and nine small), and one is a small domestic firm whose supply source staff could not determine.<sup>3</sup>

Staff identified two foreign manufacturers selling directly to the United States. Other foreign booster seats are entering the U.S. market in a variety of ways as well. Staff found that online storefronts and online retailers, acting as brokers between buyers and sellers, are the source of a large number of booster seat products, particularly from Asia and Europe. Products purchased through these websites are sometimes shipped by the individual sellers. Often, staff cannot determine whether an online seller is located in the United States, or overseas, or whether the seller is a manufacturer, retailer, or importer, which makes it difficult for staff to categorize these companies for analysis. Staff found that European booster seats are also entering the U.S. market through foreign retailers who are willing to ship directly to the United States. Booster seats available online from foreign suppliers are less likely to be compliant with the ASTM voluntary standard.

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<sup>3</sup> Staff made determinations using information from Dun & Bradstreet and ReferenceUSAGov, as well as firm websites.

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### III. Incident Data

#### A. *CPSRMS Data*

The data discussed in this section come from CPSC’s Consumer Product Safety Risk Management System (CPSRMS), which collects data from consumer reports, medical examiners, other state and local authorities, retailer reports, newspaper clippings, death certificates, and follow-up CPSC In-Depth Investigations of reported incidents.<sup>4</sup> From the CPSRMS, CPSC is aware of a total of 912 incidents (2 fatal and 152 nonfatal injuries) related to booster seats reported to have occurred from January 1, 2008 through October 31, 2017.<sup>5</sup> The 912 booster seat incidents include 45 new booster seat-related incidents reported since publication of the NPR (collected between October 1, 2016 and October 31, 2017). None of the 45 newly reported incidents is a fatality. All of the newly reported incidents fall within the same hazard patterns identified in the NPR. Retailers and manufacturers reporting through the CPSC’s “Retailer Reporting Program” account for 93 percent of the newly reported incidents (42 out of 45 incidents). CPSC received the remaining three incident reports from consumers using SaferProducts.gov. CPSC Field staff conducted an In-Depth Investigation on one of the newly reported incidents.

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<sup>4</sup> 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 incidents occurring during this period and illustrate the circumstances involved in the incidents related to booster seats.

<sup>5</sup> The NPR described incidents reported to have occurred from January 1, 2008 through September 30, 2016. A detailed description of these data can be found in Tab A of the Staff’s NPR Briefing Package.

Tab A of the Staff’s Final Rule Briefing Package provides a detailed description of the 45 newly reported incidents (collected between October 1, 2016 and October 31, 2017). Fifty-three percent of the 45 newly reported incidents were reported to have occurred between October 2016 and October, 2017 (*i.e.*, post-NPR timeframe). The remaining 47 percent of newly reported incidents occurred during the timeframe covered in the NPR.

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### 1. Fatalities

CPSC received reports of two fatalities associated with the use of a booster seat. Both incidents occurred in 2013 and were described in the NPR:

- In one incident, a 22-month-old female, sitting on a booster seat attached to an adult chair, pushed off from the table and tipped the adult chair backwards into a glass panel of a china cabinet behind her. The cause of death was listed as “exsanguination due to hemorrhage from incised wound.”
- In the other incident, a 4-year-old male fell from a booster seat to the floor; he seemed uninjured at the time, but later that evening while riding his bike, the child fell, became unresponsive, and later died. The cause of death was multiple blunt force trauma.

### 2. Nonfatalities

CPSC is aware of 152 booster seat nonfatal injury incidents occurring between January 1, 2008 and October 31, 2017 (146 incidents reported in the NPR and 6 newly reported incidents). A majority of these incidents involved children 18 months and younger. The severity of the injury types among the 152 reported injuries are described below:

- Five children required a hospital admission. The injuries were skull fractures, concussions, and other head injuries.
- Another 22 children were treated and released from a hospital emergency department (ED) for injuries resulting mostly from falls.
- The remaining incidents primarily involved contusions, abrasions, and lacerations, due to falls or entrapment of limbs/extremities.

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No injury occurred, or the report did not mention an injury occurring, for the remaining 758 incident reports (719 incidents reported in the NPR and 39 newly reported incidents). However, CPSC staff's review of these incident report descriptions indicates the potential for a serious injury or even death.

### *B. Hazard Pattern Identification*

CPSC considered all 912 reported incidents to identify the following hazard patterns associated with booster seats:

1. **Restraint/Attachment Problems (37%):** 339 incidents (317 incidents reported in the NPR and 22 newly reported incidents) involved the mechanism for attaching a booster seat to an adult chair, or the restraint system that contains the child within the booster seat. Issues with the attachment mechanism included anchor buckles/clasps/straps breaking, tearing, fraying, detaching or releasing. Restraint-system problems included: buckles/prongs breaking, jamming, releasing too easily, or separating from straps; straps tearing or fraying, pinching, or coming undone; and general inadequacy or ineffectiveness of restraints in containing the child in place. In 21 incident reports, staff could not determine from the report if the buckle or strap referred to in the report meant the restraint or the attachment system. In eight of the incident reports, both systems were reported to have failed. Thirty-seven injuries (all reported in the NPR) are included in this category, of which seven were treated at a hospital ED.

2. **Seat-Related Issues (28%):** 255 incidents (254 incidents reported in the NPR and 1 newly reported incident) involved seat-related issues. These incidents included failure of the lock/latch that controls the seat-recline function; tearing, cracking, and/or peeling seat pads; detaching seat backs; failure of seat height adjustment lock/latches; and seats detaching from the base of certain models. Twenty-two injuries are included in this category: three resulting in

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hospitalization and five ED-treated injuries. The newly reported incident involved the booster *seatback* detaching altogether, allowing the child to fall and sustain multiple skull fractures, requiring hospitalization.

3. **Tray-Related Issues** (21%): 189 incidents (171 incidents reported in the NPR and 18 newly reported incidents) involved issues related to booster seat trays. These incidents included tray paint finish peeling off, trays failing to lock/stay locked, trays with sharp protrusions on the underside, trays too tight/difficult to release, and trays pinching fingers. These incidents also included complaints about broken toy accessories, which are usually attached to the tray (or tray insert). Thirty-eight injuries are included in this category, including one that required ED treatment.

4. **Design Problems** (3.8%): 35 incidents (33 discussed in the NPR and 2 newly reported) involved a potential entrapment hazard due to the design of the booster seat. Most of these incidents involved limbs, fingers, and toes entrapped in spaces/openings between the armrest and seat back/tray, between the passive crotch-restraint bar and the seat/tray, between the tray inserts, or in toy accessories. Sixteen injuries were included in this category, two requiring ED treatment.

5. **Stability-Related Issues** (3.4%): 31 incidents, discussed in the NPR, involved booster seat stability. Most of these incidents (27 of 31) concerned the adult chair to which the booster seat was attached tipping back or tipping over. Some of these incidents resulted from the child pushing back from the table or counter. Twenty-two injuries (including two hospitalizations and five ED-treated injuries) and one fatality are included in this category.

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6. **Armrest Problems** (2.6%): 24 incidents, discussed in the NPR, involved booster seat armrests cracking or breaking. In a few cases, the armrest reportedly arrived broken inside the booster seat packaging. One injury is included in this category.

7. **Miscellaneous Product Issues** (1.9%): 17 miscellaneous incidents (16 incidents reported in the NPR and 1 newly reported incidents) involved a variety of product-related issues, including unclear assembly instructions, poor quality construction, odor, rough surface, rough edges, breakage, or loose hardware at unspecified sites. One incident report alleged that the poor design of the booster seat failed to contain/support the child and led to a fall injury. Ten injuries were included in this category, including two ED-treated injuries.

8. **Combination of Multiple Issues** (1.9%): 17 incidents, discussed in the NPR, involved a combination of the product hazards listed above. Four injuries were included in this category.

9. **Unknown Issues** (0.5%): Five incidents involved unknown issues (4 incidents reported in the NPR and 1 newly reported incident). In these incidents, CPSC staff had insufficient information to determine how the incidents occurred. One incident in this category, a fatality, reported confounding factors that likely contributed to the death. Two other injuries were reported in this category, including a fall injury.

### C. *NEISS Data*

The National Electronic Injury Surveillance System (NEISS), a statistically valid injury surveillance system,<sup>6</sup> is the source of the injury estimates discussed in this section. Since the

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<sup>6</sup> NEISS injury data are gathered from EDs of hospitals selected as a probability sample of all the U.S. hospitals with EDs open 24 hours a day that have at least six beds. The surveillance data gathered from the sample hospitals enable the CPSC staff to make timely national estimates of the number of injuries associated with specific consumer products.

Staff extracted all data coded under product code 1556 (*Attachable high chairs including booster seats*) for patients aged under 5 years. Staff considered certain records out-of-scope for the purposes of this memorandum. For

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NPR, new ED-treated injury data have become available for 2016. However, the estimates for 2016 are not reportable per NEISS publication criteria.<sup>7</sup> As such, the Commission presents the injury estimates and injury characteristics for the aggregate data from 2008 through 2016.

CPSC staff estimates a total of 12,000 injuries (sample size=455, coefficient of variation=0.10) related to booster seats were treated in U.S. hospital EDs over the 9-year period from 2008 through 2016. NEISS data for 2017 is not complete at this point in time. Similar to 2016, staff cannot report injury estimates for some of the other individual years because of the NEISS publication criteria. Note, however, that staff did not observe any trend over the 9-year period regarding injuries increasing or decreasing.

No deaths were reported through the NEISS. About 64 percent of the injured were younger than 2 years of age; among the remaining, 24 percent, 8 percent, and 4 percent were 2-year-olds, 3-year-olds, and 4-year-olds, respectively. For the ED-treated injuries related to booster seats reported in the 9-year period, the following characteristics occurred most frequently:

- Hazard – falls out of the booster seat (97 percent). Most of the falls were due to:
  - Unspecified circumstances (55 percent).
  - Unspecified tip overs (18 percent); tip overs due to child pushing back or rocking in seat (6 percent).
  - Booster seat attachment or child-restraint mechanism failure/defeat/non-use (8 percent).

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example, staff excluded hook-on chair-related incidents that are also covered under product code 1556 or car booster seats incorrectly coded as 1556; and also considered out-of-scope a sibling or a pet knocking over the adult chair holding the booster seat containing the child. Staff excluded these records prior to deriving the statistical injury estimates.

<sup>7</sup> 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.

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- Injured body part – head (58 percent), face (22 percent), and mouth (7 percent).
- Injury type – internal organ injury (40 percent), lacerations (24 percent), and contusions/abrasions (19 percent).
- Disposition – treated and released (about 98 percent).

**Incidents in a Restaurant Setting.** For the NPR, CPSC staff noted that although most of the incidents occurred in home settings, one incident report explicitly mentioned a restaurant where an infant was using a booster seat provided by the establishment. Among the new incidents that staff analyzed, none occurred at a restaurant.

Among the NEISS ED-treated injury data, from 2008 to 2016, 31 injury reports explicitly mentioned that the injury occurred in a restaurant setting. Although these 31 reports are included in the larger sample that yielded the total estimated number of injuries of 12,000, a national injury estimate for restaurant injuries *only* does not meet the NEISS publication criteria and is not presented here. Staff reviewed the injury characteristics in these reports, which indicated that all of the injuries resulted from falls, but the circumstances were unspecified for the most part. Staff cannot discern from the injury reports whether the booster seats involved were provided by the establishment.

### *D. Product Recalls*

Compliance staff reviewed recalls of booster seats that occurred from January 1, 2008 to May 30, 2018. During that time, two consumer-level recalls involved booster seats. Both recalls involved a fall hazard. One recalled product was associated with a fall hazard when the stitching on the booster seat's restraint straps loosened, allowing the straps to separate from the seat and the child to fall out of the seat. Another recall involved the booster seat restraint buckle, which opened unexpectedly, allowing a child to fall from the chair and be injured.

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### IV. Overview and Assessment of ASTM F2640

#### A. Overview of ASTM F2640

The voluntary standard for booster seats, ASTM F2640, *Standard Consumer Safety Specification for Booster Seats*, is intended to minimize the risk of injury or death to infants in booster seats associated with falls from booster seats, tipping over or out of booster seats, restraint disengagement or lack of a restraint system, tray disengagement, booster seats stability while attached to an adult chair, entrapments in booster seats, and other hazards such as cuts, bruises, and lacerations. ASTM F2640 was first approved and published in 2007, as ASTM F2640-07, *Standard Consumer Safety Specification for Booster Seats*. ASTM has since revised the voluntary standard 11 times. Tab C of Staff's Final Rule Briefing Package includes a description of each revision through 2018.

The current version of the standard, ASTM F2640-18, was approved on April 1, 2018, and published in April 2018. ASTM F2640-18 includes three changes from the version of the standard proposed in the NPR, ASTM F2640-17<sup>e1</sup>:

- New performance and testing requirements for a new type of booster seat that hangs from the back of an adult chair;
- Clarification of the installation position for measuring a booster seat on an adult chair; and
- New warning statement in Instructional Literature to address booster seats that do not have a recline position.

In section IV.C below, we describe and assess each change.

#### B. Description of ASTM F2640-18

ASTM F2640-18 includes these key provisions: scope, terminology, general requirements, performance requirements, test methods, marking and labeling, and instructional literature.

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**Scope.** This section describes what constitutes a “booster seat.” As stated in section II.A. of this preamble, the Scope section describes a booster seat as “a juvenile chair, which is placed on an adult chair to elevate a child to standard dining table height.” The description further specifies appropriate ages for children using a booster seat, stating, a “booster seat is made for the purpose of containing a child, up to 5 years of age, and normally for the purposes of feeding or eating.”

**Terminology.** This section defines terms specific to this standard.

**General Requirements.** This section addresses numerous hazards with several general requirements; most of these general requirements are also found in the other ASTM juvenile product standards. The general requirements included in this section are:

- Sharp points or edges;
- Small parts;
- Wood parts;
- Lead in paint;
- Scissoring, shearing, and pinching;
- Openings;
- Exposed coil springs;
- Protective components;
- Labeling; and
- Toys.

**Performance Requirements and Test Methods.** These sections contain performance requirements specific to booster seats (discussed here) and the required test methods to assess conformity with such requirements.

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- **Tray impact test:** This test assesses the tray's resistance to breaking into small pieces or creating sharp points/edges when dropped from a specified height.
- **Tray engagement test:** This test assesses the tray's ability to remain engaged to the booster seat when subjected to a specified force horizontally and vertically.
- **Static load test:** This test assesses whether the booster seat can support its maximum recommended weight, by gradually applying a static load on the center of the seating surface for a specified amount of time.
- **Restraint system test:** This test assesses whether the restraint system can secure a child in the manufacturer's recommended-use positions.
- **Seat attachment test:** This test specifies that a booster seat must have a means of attaching a booster seat to an adult chair and assesses the booster seat's ability to remain fastened to the adult chair when force is applied.
- **Structural integrity (dynamic load):** This requirement assesses the durability of the booster seat, including locking/latching devices which prevent folding or adjustment of the booster seat.
- **Maximum booster seat dimensions:** This requirement assesses how large a booster seat can be in relation to the adult chair dimensions specified on the booster seat's packaging.

***Marking and Labeling.*** This section contains various requirements related to warnings, labeling, and required markings for booster seats, and it prescribes various substance, format, and prominence requirements for this information.

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*Instructional Literature.* This section requires that easily readable and understandable instructions be provided with booster seats. Additionally, the section contains requirements related to instructional literature contents and format.

### C. *Assessment of ASTM F2640-18*

CPSC staff identified 912 incidents (including two fatalities) related to the use of booster seats. CPSC staff examined the incident data, identified hazard patterns in the data, and worked with ASTM to develop and update the performance requirements in ASTM F2640. The incident data and identified hazard patterns formed the basis for ASTM to develop ASTM F2640-18 with CPSC staff's support throughout the process.<sup>8</sup> The following section discusses how each of the identified product-related issues or hazard patterns listed in section III.C. of this preamble is addressed by the current voluntary standard, and it also describes and assesses each of the three changes included in ASTM F2640-18.

#### 1. Adequacy of ASM F2640-18 to Address Hazard Patterns

##### a. *Restraint/Attachment Problems*

Restraint system and attachment problems included buckles/prongs breaking, jamming, releasing too easily, or separating from straps; straps tearing or fraying, pinching, or coming undone; and inadequacy or ineffectiveness of restraints in containing the child in place. Similarly, complaints about the seat attachment system involved anchor buckles/clasps/straps breaking, tearing, fraying, detaching, or releasing. The Commission has reviewed CPSC staff's evaluation of the attachment and restraint system tests in ASTM F2640-18, and concludes that these tests adequately address the identified hazards.

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<sup>8</sup> Assessment of ASTM F2640-17<sup>e1</sup> in the NPR is at 82 FR 22928-29, and in Tab B of Staff's NPR Briefing Package.

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Section 6.5 of ASTM F2640-18 requires that a booster seat must have a means of “attaching” to an adult chair, and be able to withstand a specified force without becoming detached from the adult chair. Booster seats may employ several methods to secure to an adult chair, including straps, suction, and anti-skid bottoms or grip feet that minimize slippage on the chair by means of friction. However, because “grip feet” and “friction bottoms” do not actually *attach* (*i.e.*, fasten) the booster seat to an adult chair, the ASTM standard does not consider these to be a means of *securing* or *attaching* booster seats to an adult chair. The Commission agrees. Conversely, because suction physically fastens the booster seat to an adult chair, the ASTM standard considers suction to be a means of attachment under Section 6.5 of the current ASTM standard. The Commission agrees with this as well. Accordingly, the final rule requires any booster seat using suction as a means of attachment to pass the attachment test to be compliant.

### *b. Seat-Related Issues*

Seat-related issues included failure of the lock/latch that controls the seat-recline function; seat pads tearing, cracking, and/or peeling; seat backs detaching altogether; seat height adjustment lock/latch failures; and seat detachment from the base that is available for certain models. The Commission has reviewed CPSC staff’s evaluation of the static load and dynamic booster seat tests in ASTM F2640-18, and concludes that these tests adequately address these hazards.

### *c. Tray-Related Issues*

Tray-related issues included trays with paint finish peeling off, trays failing to lock/stay locked, trays with sharp protrusions on the underside, trays that were too tight/difficult to release, and trays pinching fingers. The Commission has reviewed CPSC staff’s evaluation of the standard, and concludes that the general requirements section of F2640-18 adequately addresses

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peeling paint, sharp protrusions, and pinching hazards, and the standard's tray engagement test adequately address the tray locking failures.

### *d. Design Problems*

Booster seat design problems resulted in limbs, fingers, and toes entrapped in spaces/openings between the armrest and seat back/tray, between a passive crotch restraint bar and seat/tray, between tray inserts, or in toy accessories. The Commission has reviewed CPSC staff's evaluation of the general requirements of ASTM 2640-18 (namely requirements relating to scissoring, shearing, and pinching, openings, and toys) and concludes that the ASTM standard adequately addresses the identified hazards.

### *e. Stability-Related Issues*

Stability-related incidents included instances where the adult chair, to which the booster seat was attached, tipped back or tipped over. Addressing the stability of the booster seat while attached to an adult chair is difficult in a standard for booster seats because stability depends on the adult chair. The ASTM booster seat subcommittee and CPSC staff worked diligently to find an effective requirement to adequately address stability without specifying requirements for the adult chair. Although ASTM F2640-18 does not contain a performance requirement to address this hazard, it does contain a labeling provision, requiring that booster seats must contain a cautionary statement: "Never allow a child to push away from table." Moreover, ASTM F2640-18 requires a booster seat to identify on the booster seat packaging the size of adult chair on which the booster seat can fit, thereby allowing consumers to make a more informed purchasing choice.

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### *f. Armrest Problems*

Armrest problems included booster seat armrests cracking, and in a few cases, the armrest arriving to the consumer broken in the packaging. The Commission has reviewed CPSC staff's evaluation of the static and dynamic load tests contained in ASTM F2640-18, and concludes that those tests adequately address armrest-related hazards.

### *g. Miscellaneous Product-Related Issues*

Miscellaneous product-related issues included unclear assembly instructions, poor quality construction, odor, rough surfaces, breakage, or loose hardware at unspecified sites. The Commission has reviewed CPSC staff's evaluation of the general requirements section, as well as the instructional literature requirements of ASTM F2640-18, and concludes that those requirements adequately address this hazard.

## 2. Description and Assessment of Changes in ASTM F2640-18

Below we describe each of the three changes in the voluntary standard since publication of the NPR, as reflected in ASTM F2640-18. The Commission finds that each of these requirements enhances the safety of booster seats and strengthens the standard incorporated as the final rule for booster seats.

### *a. New performance and testing requirements for a new type of booster seat that hangs from the back of an adult chair*

The new style of booster seat attaches to the adult chair fundamentally differently than typical booster seats. This new design can fold and is marketed as a travel booster seat. Typical booster seats are placed on the seat of the chair and usually attached to the seat and back with straps. Thus, the typical booster seat rests on the chair seat and the adult chair seat bears all of the booster seat's weight. The new style of booster seat has a frame that hangs over the top of the adult chair seat back, usually with umbrella style hooks, and has feet that rest on the seat of

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the adult chair. The child's seating area is attached to the frame. Tab C of Staff's Final Rule Briefing Package contains a picture of this design.

Section 6.7 of ASTM F2640-18 addresses this style of booster seat and has two requirements. The first requirement states that, when in all manufacturer's recommended use positions, the booster seat must not tilt forward more than 10 degrees from the horizontal. This requirement was added because a seat that is tilted forward too far may result in a child falling out of the seat. The second requirement states that the backrest support contact must contact the top of the adult chair backrest and extend over and below the top rear edge of the adult chair backrest. This requirement was added to ensure that the booster seat is reasonably secure to the adult chair backrest so that the booster seat does not fall off the adult chair.

Section 6.8 of ASTM F2640-18 addresses the maximum booster seat dimensions. The previous version, ASTM F2640-17<sup>e1</sup>, also had a section addressing maximum dimensions, but it did not include requirements for the new, over-the-backrest-style booster seats. The latest version incorporates the previous requirements, but it also includes the requirements specific to this new style of booster seat.

*b. Clarification of the installation position for measuring a booster seat on an adult chair*

Section 7.10.1.1 of ASTM F2640-18 explains how to measure the maximum booster seat dimension for both traditional and over-the-backrest style booster seats and includes a diagram of a test fixture to be used for over-the-backrest seats and a diagram of their proper installation. This test protocol was added to provide clarity and ensure that testing labs are performing the tests consistently.

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- c. *New warning statement in Instructional Literature to address booster seats that do not have a recline position.*

Section 9 (Instructional Literature) of F2640-18 contains a new requirement, Section 9.5, stating that if the booster seat has no recline feature, the instructions shall contain a statement addressing that the product is only for children capable of sitting upright unassisted.

### D. *International Standards for Booster Seats*

The Commission is aware of one international voluntary standard pertaining to booster seats, BS EN16120 Child Use and Care Articles – Chair Mounted Seat. CPSC staff compared the performance requirements of ASTM F2640-18 to the performance requirements of BS EN16120, which is intended for a similar product category, and identified several differences. Primarily, the scope of ASTM F2640-18 includes products intended for children up to 5 years of age, while EN 16120 is intended for products up to an age of 36 months, or a maximum weight of 15 kg (33 lbs.).

Staff found that some individual requirements in the BS EN16120 standard are more stringent than ASTM F2640-18. For example, BS EN16120 includes requirements for head entrapment, lateral protection, surface chemicals, cords/ribbons, material shrinkage, packaging film, and monofilament threads. Staff did not identify any hazard patterns in CPSC's incident data that such provisions could address. Conversely, some individual requirements in ASTM F2640-18 are more stringent than those found in EN 16120. For example, ASTM F2640-18 includes requirements for tray performance and toy accessories. Currently, CPSC is not aware of any technically feasible method to test for the most prevalent and dangerous hazard pattern, falls resulting from tipping over in an adult chair. However, CPSC staff will continue to monitor hazard patterns and recommend future changes to the Commission, if necessary.

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### V. Response to Comments

CPSC received eight comments on the NPR. Four commenters generally supported the NPR. Two commenters requested that CPSC wait to finalize the rule to include the next version of the voluntary standard, which would include two open ASTM ballot items, including a new booster seat design that attaches to an adult chair by hooking over the top back of the chair. Two commenters stated that booster seats manufactured for food-service establishments should be exempt from the mandatory standard, or be subject to a different standard. Below we summarize and respond to each significant issue raised by the commenters.

*Comment 1:* Two commenters stated that the Commission should not issue a final rule until ASTM approves the next version of ASTM F2640. The commenters stated that the 2018 version would clarify the intent of the maximum booster seat dimension test and would address the new hook on booster seat design.

*Response 1:* The Commission agrees with these commenters. The final rule incorporates by reference the latest version of the voluntary standard, ASTM F2640-18.

*Comment 2:* Two manufacturer commenters contended that food-service booster seats should not be covered under ASTM F2640, with one commenter proposing that a separate commercial standard be developed. These commenters stated that food-service booster seats have simple designs intended solely to be positioned easily alongside a dining table, and raised to a height for a child to eat. Commenters noted several elements that make food-service booster seats different from home-use booster seats, including: (1) less-confined designs to accommodate bulky outerwear; (2) generally smaller size; (3) tray-less; (4) not adjustable (no swiveling or reclining); and (5) typically use attachment methods like anti-skid pads or raised rubber feet that can accommodate restaurant seating, such as booths and benches, which belts and straps cannot.

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One manufacturer-commenter noted that the level of supervision over children in restaurants is greater than in homes, where children may be left unattended while eating. The commenter stated that this makes food-service booster seat designs, which are completely appropriate for restaurant use, potentially risky in home settings. Rather than addressing this under the current regulation, however, the commenter suggested a separate regulation for food-service booster seats that focuses on elements that ensure proper use, such as more stringent warnings and instructional literature (in particular not using food-service booster seats outside of commercial settings, and not leaving children unsupervised during use), as well as educating end users and wait staff.

Consumer advocate-commenters agreed with the NPR that food-service booster seats should be included under the mandatory standard because these products are available for sale to consumers and consumers use the products in restaurants, and these products should provide the same measure of safety.

*Response 2:* The Commission recognized in the NPR that food-service booster seats vary in design and where they will be used, and that the attachment requirement in ASTM F2640 may require a design change for some food-service booster seats. Accordingly, the NPR invited commenters to provide information on the effects of making ASTM F2640-17<sup>e1</sup>'s attachment requirements mandatory on booster seats that currently use grip feet/friction bottoms to secure the booster to the surface upon which it sits. Additionally, the NPR solicited comments regarding the capability of suction cups to comply with performance requirements.

Although the Commission agrees that some differences exist between food-service booster seats and booster seats intended for home-use, the commenters did not provide sufficient, specific information to support the assertion that food-service booster seats should not be

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covered under ASTM F2640; nor did they provide cost estimates for varying designs, other than generally stating that the process of compliance would be costly and time intensive.

Accordingly, despite CPSC staff's interviews with affected parties, and after careful review of the comments, the Commission has not identified any inherent differences between the two products that would prevent food-service booster seats from meeting the mandatory standard and remaining fundamentally the same product. For example, although no food-service booster seats have trays, trays are not required to meet the booster seat final rule. If a booster seat does not have a tray, the requirements, tests, warnings, and instructions related to trays are not required. As another example, although it is true that anti-skid pads and raised rubber feet would not be considered attachment methods under the mandatory standard, they may still be used *in addition to* an attachment method like a belt, strap, or suction cup. Food-service booster seats can likely meet the new standard by adding a belt, for example, while retaining the anti-slip mechanism they were using already.

Section 6.5 of ASTM F2640 (2017<sup>e1</sup> and 2018 versions) requires a mechanism of attaching a booster seat to an adult chair, but it does not require the attachment mechanism to be a strap. Although a strap attachment would not work on a bench or booth, non-strap attachment methods, such as suction cups, could be used to secure a booster to a bench. Additionally, ASTM F2640 does not state any specific requirements for booster seats used on a booth or bench-type seating. Under the standard, booster seats are tested on an adult chair. The standard requires the attachment method to withstand force requirements. Although “grip feet” or “friction bottoms” are not a sufficient means of fastening a booster seat to an adult chair, some suction cups can be sufficient to withstand the force required in the standard.

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Based on the foregoing, the Commission rejects the assertion that food-service booster seats should solely rely on warnings to prevent falls in food-service booster seats. In a food-service environment, booster seats are used on adult chairs and bench-style seating. Adhering to the mandatory standard for booster seats will ensure that food-service booster seats remain attached to adult chairs under the testing protocol, but not impede using grip feet on bench seating, if that is how manufacturers choose to address this issue. Additionally, nothing in the final rule would prevent food-service booster seat suppliers from providing additional warnings and instructions, if they believe such information will improve the safety their products.

Section 104 of the CPSIA requires the Commission to promulgate a booster seat standard that is either “substantially the same as” the voluntary standard or “more stringent than” the voluntary standard if the more stringent requirements would further reduce the risk of injury associated with the product. Accordingly, CPSC’s mandatory standard could only provide requirements for food-service booster seats that differ from the ASTM standard, if those different requirements strengthen the standard and further reduce the risk of injury. The commenters have not provided any safety rationale for excluding food-service booster seats from the final rule. None of the suggestions presented by commenters would result in a standard that is “more stringent than” the voluntary standard. Therefore, the Commission is not modifying the booster seat requirements for food-service booster seats as part of the mandatory standard. However, as explained below, in response to Comment 6, the final rule provides additional time to comply with the new standard.

*Comment 3:* One commenter stated that to comply with the standard, booster seats using suction as a means of attachment should be required to pass the attachment test in ASTM F2640-17<sup>e1</sup>.

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*Response 3:* The Commission agrees that regardless of the means of attachment, all booster seats must meet the requirements in section 6.5 of the current voluntary standard, ASTM F2640-18. These requirements include: not allowing the booster seat to fall off the adult chair and break, and remaining functional after applying a 45-pound force horizontally to the center of the front of the booster seat five times. The requirements do not prescribe how the seat should be attached to the adult chair.

*Comment 4:* One commenter questioned the applicability of placing warning labels on commercial booster seats because of size constraints on restaurant style-booster seats. The commenter indicated that the distance from the seat surface to the top of the side walls of the seat range from 3 inches to 5 inches, which restricts the space for labeling, and requests conspicuous labeling to include the seat surface.

*Response 4:* The most recent version of the voluntary standard applicable to booster seats, ASTM F2640-18, requires the warning label to be conspicuous. A “conspicuous label” is defined in the standard as a “label which is visible, when the product is in the manufacturer’s recommended use position, to a person standing at the sides or front of the booster seat” (ASTM F2640-18, section 3.1.1). Accordingly, the definition of “conspicuous” in the standard does not preclude use of the seat surface for the warning label placement, because the seat surface is visible to a person standing at the sides or front of the booster seat.

Additionally, to address comments that a side wall height range of 3 inches to 5 inches would restrict warning placement, staff generated mock warning labels that meet the ASTM F2640-18 requirement for signal word and font size in section 8.4.5. Tab B of Staff’s Final Rule Briefing Package provides pictures of these mock warning labels. Staff’s mock-ups show that

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the label can be placed on products with limited side wall space. Accordingly, manufacturers have the flexibility to place the warning label on seat surface or on the seat vertical wall.

*Comment 5:* One commenter urged CPSC to work with manufacturers to use design and visual cues, such as pictograms, to ensure warnings are conveyed effectively to those with limited or no English literacy.

*Response 5:* The Commission acknowledges that well-designed graphics, such as pictograms, can be useful for consumers with limited or no English literacy. However, the design of effective graphics can be difficult. Some seemingly obvious graphics are poorly understood and can give rise to interpretations that are the opposite of the intended meaning (so-called “critical confusions”). To avoid confusion, a warning pictogram should be developed with an empirical study and should also be well-tested on the target audience. Thus far, pictograms have not been developed for booster-seat warning labels. In the future, if CPSC staff advises that graphic symbols are needed to reduce the risk of injury associated with these products, the Commission can consider updating the mandatory standard to include pictograms.

*Comment 6:* The Commission received four comments on CPSC’s proposed 12-month effective date for the booster seats mandatory standard. One comment, submitted by three consumer advocacy groups, supported a 6-month effective date (which they seem to believe mistakenly was the Commission’s proposal). Two commenters, a juvenile product manufacturers’ association and a private citizen, supported the proposed 12-month effective date, although the private citizen said that they would also support an even longer effective date to reduce the economic impact on small firms. A fourth commenter, a small manufacturer of food-service booster seats, suggested a 2-year effective date to allow additional time for product

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development. The commenter stated: “compliance may require the costly and time intensive process of developing and building new tooling to comply with the Standard.”

In a follow-up call with Commission staff (a phone log is in regulations.gov), the fourth commenter elaborated on the request for a 2-year effective date, stating that for their booster seats to come into compliance with the revised ASTM standard, they will need to design and test new plastic molds. Creating a new mold includes researching and developing a new design, initial tool-building to implement the design, and then testing the resulting product. The commenter stated that the entire process takes longer for firms like theirs because their mold-maker is located overseas. Consequently, if changes to the mold are required after testing the new product, the turnaround time is longer than if all the work were conducted in the United States. According to the commenter, if the design process goes perfectly, with no required changes, then their booster seats could be redesigned in time to meet the 12-month effective date. The commenter stated that the request for a 2-year effective date was based on the design process for plastic molds and the potential need to create and test several iterative designs.

*Response 6:* The Commission recognizes that longer effective dates minimize the impact on affected firms. The initial regulatory flexibility analysis (IRFA) found that a significant economic impact could not be ruled out for 69 percent of the small firms operating in the U.S. market. Staff advised that many of those firms might not be aware of the ASTM voluntary standard or the CPSC booster seats rulemaking, particularly food-service booster seat suppliers, which make up one-third of the small suppliers for which a significant impact could not be ruled out. The information supplied by the fourth commenter on the time and cost involved in designing and producing new plastic molds is consistent with information supplied by CPSC engineers, as is the longer time frame required for firms conducting some of their redesign

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overseas. Staff engineers have also indicated that foam products would require new molds as well, which likely require similar cost and time investments.

Based on this information, the Commission concludes that a 12-month effective date likely represents a “best-case” scenario for many affected firms, and that 2 years likely represents a “worst-case” scenario for firms required to come into compliance. Firms designing and/or testing their molds in the United States should be able to meet shorter timelines, both in “best-case” and “worst-case” scenarios. After considering the information provided by commenters, the Commission is providing an 18-month effective date for all firms to come into compliance with the final rule. An 18-month effective date balances the need for improved consumer safety, with reducing the impact of the final rule on small firms.

Although some firms using molds may require iterative designs to meet the standard, the 2-year time estimate for product redesign using molds applies in cases where a mold must be modified several times, and the mold-redesign work is conducted overseas. Not all firms use molds, not all firms have molds made overseas, and not all firms will encounter sufficient difficulty with their molds to require a full 2 years to make their iterative changes. Additionally, not all products will require a full redesign. Some products already meet the ASTM voluntary standard and the anticipated product modifications (straps and/or more secure means of attachment) in those cases are not complex and should not fall within the “worst-case” scenario of a 2-year design process.

Moreover, providing additional time for firms to come into compliance reduces burden by allowing firms the time: (1) to spread out design and testing costs over a longer period; (2) to come into compliance if they are currently unaware of the voluntary standard or the rulemaking;

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and (3) to redesign a plastic or foam product to accommodate the design, tooling, and testing adjustments that may be required during the product redesign process.

### **VI. Mandatory Standard for Booster Seats**

As discussed in the previous section, the Commission concludes that ASTM F2640-18 adequately addresses the hazards associated with booster seats. Thus, the final rule incorporates by reference ASTM F2640-18, without modification, as the mandatory safety standard for booster seats.

### **VII. Amendment to 16 CFR part 1112 to Include NOR for Booster Seats 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. 15 U.S.C. 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. 15 U.S.C. 2063(a)(3). The *Safety Standard for Booster Seats*, to be codified at 16 CFR part 1237, is 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), which is codified at 16 CFR part 1112 (referred to here as part 1112). Part 1112 became effective on June 10, 2013 and establishes requirements for accreditation of third party conformity assessment bodies (or laboratories) to test for conformance with a children's product safety rule, in accordance with

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section 14(a)(2) of the CPSA. Part 1112 also codifies a list of all of the NORs that the CPSC had published at the time part 1112 was issued. All NORs issued after the Commission published part 1112, such as the safety standard for booster seats, require the Commission to amend part 1112. Accordingly, the Commission is now amending part 1112 to include the safety standard for booster seats in the list of other children's product safety rules for which the CPSC has issued NORs.

Laboratories applying for acceptance as a CPSC-accepted third party conformity assessment body to test to the new standard for booster seats are 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 1237, *Safety Standard for Booster Seats*, included in its scope of accreditation of CPSC safety rules listed for the laboratory on the CPSC website at: [www.cpsc.gov/labsearch](http://www.cpsc.gov/labsearch).

### **VIII. Incorporation by Reference**

Section 1237.2 of the final rule provides that booster seats must comply with applicable sections of ASTM F2640-18. The OFR has regulations concerning incorporation by reference. 1 CFR part 51. These regulations require that, for a final rule, agencies must discuss in the preamble to the rule the way in which materials that the agency incorporates by reference are reasonably available to interested persons, and how interested parties can obtain the materials. Additionally, the preamble to the rule must summarize the material. 1 CFR 51.5(b).

In accordance with the OFR's requirements, the discussion in section IV of this preamble summarizes the required provisions of ASTM F2640-18. Interested persons may purchase a copy of ASTM F2640-18 from ASTM, either through ASTM's website, or by mail at the address

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provided in the rule. A copy of the standard may also be inspected at the CPSC's Office of the Secretary, U.S. Consumer Product Safety Commission. Note that the Commission and ASTM arranged for commenters to have "read-only" access to ASTM F2640-17<sup>e1</sup> during the NPR's comment period.

### **IX. 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). Typically, the Commission provides a 6-month effective date for final rules issued for durable infant or toddler products under section 104 of the CPSIA. However, in the NPR, the Commission proposed that the booster seat rule be effective 12 months after publication of the final rule in the *Federal Register*, to allow booster seat manufacturers additional time to bring their products into compliance.

CPSC received several comments on the effective date of the final rule, which are summarized in section V of this preamble, comment 6. As explained there, the remolding process for plastic and foam booster seats could take in "best-case scenarios" 12 months, but in "worst-case scenarios" the process could take up to 2 years. Recognizing that worst-case scenarios are likely to be rare, the Commission is providing an 18-month effective date for the final rule. Moreover, as explained in the next section of the preamble, the additional time reduces the impact of the rule on small businesses.

### **X. Regulatory Flexibility Act<sup>9</sup>**

The Regulatory Flexibility Act (RFA), 5 U.S.C. 601-612, requires that agencies review a proposed rule and a final rule for the rule's potential economic impact on small entities,

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<sup>9</sup> Tab D of Staff's Final Rule Briefing Package contains the complete Final Regulatory Flexibility Analysis for this final rule.

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including small businesses. Section 604 of the RFA generally requires that agencies prepare a final regulatory flexibility analysis (FRFA) when promulgating final rules, unless the head of the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. For booster seats, staff cannot rule out a significant economic impact for 19 of the 29 (66 percent) known small domestic suppliers of booster seats to the U.S. market.

Accordingly, staff prepared a FRFA that is available at Tab D of the Staff's Final Rule Briefing Package. We provide a summary of the FRFA below.

The Commission is aware of 29 small firms, including 19 domestic manufacturers, nine domestic importers, and one firm of unknown type, currently marketing booster seats in the United States. The Commission concludes that it is unlikely that there would be a significant economic impact on the eight small manufacturers and two small importers of booster seats that comply with the current voluntary standard for Juvenile Products Manufacturer's Association- (JPMA) testing purposes, ASTM F2640-17<sup>e1</sup>.<sup>10</sup> However, the Commission cannot rule out a significant economic impact for 19 of the suppliers of noncompliant booster seats (11 manufacturers, seven importers, and one unknown type).

### A. *The Product*

Section II.A of this preamble defines "booster seats" and discussed booster seat combination products. The final rule would cover these products when they are in their booster seat configuration. Some suppliers produce booster seats intended predominately for restaurant use. As discussed in sections II.A and V (comment 2), the Commission will include food-service booster seats in the final rule with the same requirements as home-use booster seats. The prices

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<sup>10</sup> The Juvenile Products Manufacturers Association (JPMA) has certification programs for several durable infant products with voluntary ASTM standards. Typically, JPMA's certification program has a 6-month delay between the publication of a new ASTM voluntary standard and its adoption for compliance testing under their program. Published in March 2017, ASTM F2640-17<sup>e1</sup> went into effect for JPMA-testing purposes in September 2017.

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for food-service and home-use booster seats are similar, averaging \$44 to \$60. Not surprisingly, combination high chair/booster seat products tend to be more expensive, ranging in price from \$50 to \$250.

### *B. Final Rule Requirements and Third Party Testing*

All booster seats manufactured after the final rule's effective date must meet the requirements of the final rule (ASTM F2640-18 with no modification). They will also need to be third party tested, as described below.

Under section 14 of the CPSA, once the new booster seat requirements become effective as a consumer product safety standard, all suppliers will be subject to the third party testing and certification requirements under the CPSA and the Testing and Labeling Pertaining to Product Certification rule (16 CFR part 1107) (1107 rule), which require manufacturers and importers to certify that their products comply with the applicable children's product safety standards, based on third party testing, and subject their products to third party testing periodically. Third party testing costs are in addition to the costs of modifying the booster seats to meet the standard. For booster seats, the third party testing costs are expected to be \$500 to \$1,000 per sample tested, with the higher cost being more applicable to the smallest suppliers.<sup>11</sup> As the component part testing rule allows (16 CFR part 1109), importers may rely upon third party tests obtained by their suppliers, which could reduce the impact on importers. The incremental costs would also be lower for suppliers of compliant booster seats if they are already obtaining third party tests to assure conformance with the voluntary standard.

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<sup>11</sup> These cost estimates are for testing compliance with the physical or mechanical requirements in the standard only. Manufacturers and importers of booster seats are already subject to third party testing requirements with respect to lead content.

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### *C. IRFA Issues Raised in the Public Comments*

The IRFA requested public feedback on three questions:

1. What actions might firms take to bring their booster seats into compliance with the proposed rule? What costs might be associated with those actions?
2. What are the differences between food-service and home-use booster seats and their typical use environments (restaurants and homes)? How might the safety risks vary between the two use environments? Are there any alternative requirements that might address these risk variations and make booster seats safer in *both* use environments?
3. What is the appropriate effective date for the proposed rule?

CPSC did not receive public comment in response to question one. CPSC did receive comments on questions 2 and 3. Comment summaries and the Commission's responses appear in section V of this preamble.

### *D. The Market for Booster Seats*

The market for booster seats was outlined in section II.B. Under U.S. Small Business Administration (SBA) guidelines, a manufacturer of booster seats is considered small if it has 500 or fewer employees; and importers are considered small if they have 100 or fewer employees. CPSC limited its regulatory flexibility analysis to domestic firms because SBA guidelines and definitions pertain to U.S.-based entities. Based on these guidelines, 29 of 44 domestic firms are small—19 domestic manufacturers, 9 domestic importers, and 1 domestic firm whose supply source could not be categorized. Additional small domestic booster seat suppliers may be operating in the U.S. market, possibly including some of the firms operating online storefronts. As discussed in the FRFA, staff expects impacts of the final rule to be small

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for online suppliers that staff could not readily identify as domestic; therefore, they are not included in the analysis.

### *E. Impact on Small Businesses*

#### 1. Small Manufacturers

##### *a. Small Manufacturers with Compliant Booster Seats*

Of the 19 small manufacturers, eight produce booster seats that comply with the ASTM voluntary standard currently in effect for testing purposes (ASTM F2640-17<sup>e1</sup>).<sup>12, 13</sup> ASTM F2640-18, the version of the voluntary standard upon which the final rule is based, for JPMA certification testing purposes, will be in effect in November 2018. The new version of the standard (ASTM F2640-18) addresses booster seats that hang from the back of the adult chair and ensures that the maximum booster seat dimensions test is performed while in the manufacturer's recommended installation configuration. In general, the Commission expects that small manufacturers whose booster seats already comply with the voluntary standard currently in effect for testing purposes will remain compliant with the voluntary standard as it evolves, because they follow, and in five cases, actively participate in, the development of the ASTM voluntary standard. Therefore, for these small manufacturers, compliance with the voluntary standard is part of an established business practice. As such, the Commission does not expect the final rule to have a significant impact on any of the eight small manufacturers with booster seats expected to meet the requirements of the voluntary standard. Additionally, because

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<sup>12</sup> The Juvenile Products Manufacturers Association (JPMA) has certification programs for several durable infant products with voluntary ASTM standards. Typically, JPMA's certification program has a 6-month delay between publication of a new ASTM voluntary standard and its adoption for compliance testing under their program. Published in March 2017, ASTM F2640-17<sup>e1</sup> went into effect, for JPMA testing purposes, in September 2017. ASTM F2640-18 will be in effect for JPMA testing before the mandatory booster seat standard goes into effect. Therefore, compliant firms are expected to remain compliant.

<sup>13</sup> In this case, four of the firms with compliant booster seats are part of JPMA's certification program, while the other four firms claim compliance based on testing performed to the ASTM standard performed outside of the JPMA certification program.

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these firms already test to the ASTM standard, the Commission expects that any third party testing costs will be minimal.

### *b. Small Manufacturers with Noncompliant Booster Seats*

Eleven small manufacturers produce booster seats that do not comply with the voluntary standard, five of which produce food-service booster seats, and six that produce booster seats for home use. CPSC staff cannot determine the extent of the changes and the cost of the changes required for the booster seats of these 11 firms to come into compliance with the final rule. For all 11 small manufacturing firms producing booster seats that do not meet the voluntary standard, the cost of redesigning the products could exceed 1 percent of the firm's revenue. Overall, staff cannot rule out a significant economic impact on any of the 11 small manufacturers producing noncompliant booster seats. Additionally, of 11 firms, staff estimates that the impact of third party testing could result in significant costs for six firms.

## 2. Small Importers

### *a. Small Importers with Compliant Booster Seats*

Staff identified two booster seat importers currently in compliance with the voluntary standard. Staff expects that small importers, like manufacturers whose booster seats already comply with the voluntary standard currently in effect for testing purposes, will remain compliant with the voluntary standard as it evolves, because these small importers follow the standard development process. Therefore, these firms are likely already to be in compliance, and the final rule should not have a significant impact on either of the small importers with compliant booster seats. Any third party testing costs for importers of compliant booster seats would be limited to the incremental costs associated with third party testing beyond their current testing regime. Staff does not expect significant impacts to result from incremental testing costs.

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### *b. Small Importers with Noncompliant Booster Seats*

Staff does not have sufficient information to rule out a significant impact from the final rule for any of the seven importers with noncompliant booster seats. The economic impact on importers depends on the extent of the changes required to come into compliance and the responses of their supplying firms, which staff cannot generally determine for noncompliant importers. Third party testing and certification to the final rule could impose significant costs for three of the seven firms with booster seats believed not to comply with the ASTM standard. However, third party testing costs are unlikely to be greater than 1 percent of the firms' gross revenues for the remaining four firms.

### 3. Small Unknown Firm Type with Noncompliant Booster Seats

For one firm identified as a supplier of noncompliant booster seats in the U.S. market, staff is unable to determine whether the firm is a manufacturer or an importer, and thus, staff does not have sufficient information to rule out the possibility that modifications required to come into compliance with the rule could result in a significant impact (*i.e.*, greater than 1 percent of revenues) on this small noncompliant firm.

### 4. Summary of Impacts

The Commission is aware of 29 small firms, including 19 domestic manufacturers, nine domestic importers, and one firm of unknown type, currently marketing booster seats in the United States. Based on the foregoing, the Commission concludes that it is unlikely that there would be a significant economic impact on the eight small manufacturers and two small importers of compliant booster seats. However, the Commission cannot rule out a significant economic impact for any of the 19 suppliers of noncompliant booster seats (11 manufacturers, seven importers, and one unknown type).

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### *F. Efforts to Minimize the Impact on Small Entities*

The NPR proposed an effective date 12 months after the publication of the final rule in the *Federal Register*. CPSC received two comments requesting a later effective date, including one from a food-service booster seat manufacturer who requested a 2-year effective date, stating they needed more time to develop and build the new tooling that would be required to meet the mandatory standard. As discussed in sections V (comment 6) and IX of this preamble, the Commission agrees that a later effective date would reduce the economic impact of the final rule on firms. Firms would have more time to adjust their designs and tooling and thus, less likely to experience a lapse in production/importation, which could result if they were unable to produce or locate suppliers within the required timeframe. Additionally, firms could spread these costs of compliance over a longer time period, thereby reducing their annual costs, as well as the present value of their total costs. To help reduce the impact on all small firms, as well as specifically reduce the potential burden on firms using molds that may require iterative designs to meet the standard, particularly where some work is conducted overseas, the final rule provides an 18-month effective date.

### *G. 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 notice of requirements (NOR) pertaining to third party conformity testing. NORs have been codified for existing rules at 16 CFR part 1112 (1112 rule). Consequently, the Commission will amend the 1112 rule to establish the NOR for testing laboratories that want accreditation to test for

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compliance with the booster seats final rule. This section assesses the impact of the amendment on small laboratories.

The Commission certified in the NPR that the proposed NOR would not have a significant 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;
- Only firms that anticipated receiving sufficient revenue from the mandated testing to justify accepting the requirements would provide testing services; and
- Most of these laboratories will already be accredited to test for conformance to other juvenile product standards, and the only costs to them would be the cost of adding the children's booster seats standard to their scope of accreditation.

No substantive changes in these facts have occurred since the NPR was published, and CPSC did not receive any comments regarding the NOR. Therefore, for the final rule, the Commission continues to certify that amending part 1112 to include the NOR for the booster seats final rule will not have a significant impact on a substantial number of small laboratories.

### **XI. 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, certain categories of CPSC actions normally have "little or no potential for affecting the human environment," and therefore, they do not require an environmental assessment or an environmental impact statement. Safety standards providing requirements for products come under this categorical exclusion. 16 CFR 1021.5(c)(1). The final rule for booster seats falls within the categorical exclusion.

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**XII. Paperwork Reduction Act**

The final rule for booster seats 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. 3501–3520). The preamble to the proposed rule (82 FR 22932-33) discussed the information collection burden of the proposed rule and specifically requested comments on the accuracy of our estimates. OMB has not yet assigned a control number for this information collection. We did not receive any comment regarding the information collection burden of the proposal. However, the final rule makes modifications regarding the information collection burden because the number of estimated manufacturers subject to the information collection burden is now estimated at 46 manufacturers, rather than the 49 manufacturers initially estimated in the proposed rule, and the number of models tested has increased from two models in the NPR, to three models for the final rule.

Accordingly, the estimated burden of this collection of information is modified 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
1237	46	3	138	1	138

Our estimate is based on the following:

Section 8.1 of ASTM F640-18 requires that all booster seats and their retail packaging be permanently marked or labeled as follows: the manufacturer, distributor, or seller name, place of business (city, state, mailing address, including zip code), and telephone number; and a code mark or other means that identifies the date (month and year as a minimum) of manufacture.

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CPSC is aware of 46 firms that supply booster seats in the U.S. market. For PRA purposes, we assume that all 46 firms use labels on their products and on their packaging already. All firms will 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. Each of the 46 firms supplies, on average, test slightly more than 2.5 different models of booster seats per year. Accordingly, for this estimate we round the number of models to three. Therefore, we estimate the burden hours associated with labels to be 138 hours annually (1 hour x 46 firms x 3 models per firm = 138 hours annually).

We estimate the hourly compensation for the time required to create and update labels is \$32.47 (U.S. Bureau of Labor Statistics, “Employer Costs for Employee Compensation,” December 2017, Table 9, total compensation for all sales and office workers in goods-producing private industries: <http://www.bls.gov/ncs/>). Therefore, we estimate the annual cost to industry associated with the labeling requirements in the final rule to be approximately \$ 4481 (\$32.47 per hour x 138 hours = \$ 4480.86). This collection of information does not require operating, maintenance, or capital costs.

Section 9.1 of ASTM F2640-18 requires instructions to be supplied with the product. 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.” We are unaware of booster seats that generally require use instructions but lack such instructions. Therefore, we estimate that no burden hours are associated with section 9.1 of ASTM F2640-18,

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because any burden associated with supplying instructions with booster seats would be “usual and customary” and not within the definition of “burden” under the OMB’s regulations.

In compliance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)), we have submitted the information collection requirements of this final rule to the OMB.

### **XIII. 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 applies to this final rule issued under section 104.

#### **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 1237**

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

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

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**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 § 1112.15 by adding paragraph (b)(47) 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) \* \* \*

(47) 16 CFR part 1237, Safety Standard for Booster Seats.

\* \* \* \* \*

3. Add part 1237 to read as follows:

**PART 1237-SAFETY STANDARD FOR BOOSTER SEATS**

Sec.

1237.1 Scope.

1237.2 Requirements for booster seats.

**Authority:** Sec. 104, Pub. L. 110-314, 122 Stat. 3016 (August 14, 2008); Sec. 3, Pub. L. 112-28, 125 Stat. 273 (August 12, 2011).

**§ 1237.1 Scope.**

This part establishes a consumer product safety standard for booster seats.

**§ 1237.2 Requirements for booster seats.**

Each booster seat must comply with all applicable provisions of ASTM F2640-18, Standard Consumer Safety Specification for Booster Seats (approved on April 1, 2018). The

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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>. 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](tel: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: [www.archives.gov/federal-register/cfr/ibr-locations.html](http://www.archives.gov/federal-register/cfr/ibr-locations.html).

Dated: \_\_\_\_\_

\_\_\_\_\_  
Alberta E. Mills  
Secretary, Consumer Product Safety Commission



# **Staff's Draft Final Rule for Booster Seats Under the Danny Keysar Child Product Safety Notification Act**

**June 20, 2018**

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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**

Date: June 20, 2018

**TO:** The Commission  
Alberta E. Mills, Secretary

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

**FROM:** George A. Borlase, Ph.D., P.E., Assistant Executive Director  
Office of Hazard Identification and Reduction  
  
Celestine T. Kish, Project Manager  
Division of Human Factors, Directorate for Engineering Sciences

**SUBJECT:** Staff's Draft Final Rule for Booster Seats under the Danny Keysar Child  
Product Safety Notification Act

## **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) 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.

Section 104(f) of the CPSIA defines "durable infant or toddler products" as "durable products intended for use, or that may be reasonably expected to be used, by children under the age of 5 years." The statute also specifies twelve categories of products that fall within the definition, including various types of children's chairs. Section 104(f)(2)(C) of the CPSIA specifically

identifies “booster chairs” as a durable infant or toddler product. Additionally, the Commission’s regulation requiring product registration cards for durable infant or toddler products identifies “booster seats” as a durable infant or toddler product. 74 *Fed. Reg.* 68,668 (Dec. 29, 2009); 16 CFR 1130.2(a)(3).

Section 104 of the CPSIA also requires the Commission to consult with representatives of consumer groups, juvenile product manufacturers, and independent child product engineers and experts to examine and assess the effectiveness of the relevant voluntary standards. This consultation process has been ongoing with staff’s participation in the juvenile products subcommittee meetings of ASTM International (ASTM). ASTM subcommittee members represent producers, users, consumers, government, and academia.<sup>1</sup> Staff began the consultation process for a rulemaking related to booster seats in fall 2015, with staff participating in the subcommittee F15.16 – Booster Seats meeting.<sup>2</sup> Staff worked with stakeholders through the ASTM process to improve the voluntary standard to address incident reports associated with booster seats.

On May 19, 2017, the Commission issued a notice of proposed rulemaking (NPR) for booster seats. 82 *Fed. Reg.* 22,925.<sup>3</sup> The NPR proposed to incorporate by reference the voluntary standard for booster seats, developed by ASTM International, ASTM F2640-17<sup>e1</sup>, *Standard Consumer Safety Specification for Booster Seats* (ASTM F2640), without modification. In this briefing package, staff now recommends that the Commission issue a final mandatory consumer product safety standard for booster seats, incorporating by reference the newest version of the voluntary standard, ASTM F2640-18, without modification. The briefing package on the draft final rule for booster seats provides:

- CPSC staff’s assessment of changes ASTM made to the voluntary standard for booster seats since the NPR published;
- CPSC staff’s responses to comments received on the NPR; and
- CPSC staff’s recommendations for a final rule to address potential hazards associated with booster seats.

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<sup>1</sup>ASTM International website: [www.astm.org](http://www.astm.org), About ASTM International.

<sup>2</sup>The meeting logs are available in the supporting documents folder at: <https://www.regulations.gov/document?D=CPSC-2017-0023-0001>

<sup>3</sup><https://www.federalregister.gov/documents/2017/05/19/2017-10044/safety-standard-for-booster-seats>

## **II. BACKGROUND ON ASTM F2640**

ASTM F2640 is the voluntary standard developed to address the identified hazard patterns associated with the use of booster seats. ASTM first approved the standard in 2007 and has revised the standard 11 times. The NPR referenced ASTM F2640-17<sup>e1</sup>. Tab C of this briefing package contains a more detailed history of the evolution of ASTM F2640.

Since publication of the NPR in May 2017, ASTM approved (April 1, 2018) and published (April, 2018) the current version of the voluntary standard for booster seats, ASTM F2640-18, with three changes from the previous version:

- New performance and testing requirements for a new type of booster seat that hangs from the back of an adult chair;
- Clarification of the installation position for measuring a booster seat on an adult chair; and
- A new warning statement in instructional literature to address booster seats that do not have a reclined position.

Tabs B and C of this package explain and assess the new warning statement and the performance and testing requirements in the standard. Comments to the NPR raised the additional performance and testing requirements and ASTM addressed the new warning statement in the instructions after the NPR. CPSC staff agrees with each of these changes, which will enhance the safety of booster seats.

## **III. PRODUCT DESCRIPTION**

ASTM F2640-18 defines a “booster seat” as “a juvenile chair, which is placed on an adult chair to elevate a child to standard dining table height. The booster seat is made for the purpose of containing a child, up to 5 years of age, and normally for the purposes of feeding or eating. A booster seat may be height adjustable and include a reclined position.” Booster seats may be constructed from a wide variety of materials, including wood, plastic, fabric, metal, and/or foam. Most booster seats, notably those intended for home use, have removable trays, allowing a table to be used as an alternative eating surface. Some booster seats are intended to double as floor seats for toddlers, and others are high chair/booster seat combination products. The ASTM standard covers combination products when they are in their booster seat configuration.

The definition of “booster seat” in ASTM F2640-18 is broad, and includes booster seats that are designed specifically for use in restaurants. Several suppliers sell these “food-service” booster seats directly to restaurants or through restaurant supply companies. Consumers also may purchase some of these products directly, for example, through online third party retailers. Consequently, consumers use food-service booster seats in homes and in restaurant establishments open to the public. CPSC staff agrees with the scope of ASTM F2640-18 and

recommends that the Commission not exclude food-service booster seats from the draft final rule.

The draft final rule for booster seats does *not* cover children’s seats intended for use in motor vehicles, which are also sometimes referred to as “booster seats.” Car booster seats are used in vehicles to raise children so that they can use the lap and shoulder belts correctly. These products are regulated by the National Highway Traffic Safety Administration (NHTSA).

## **IV. DISCUSSION**

### **A. Overview of Data (Tab A)**

CPSC staff is aware of a total of 912 incidents (2 fatal and 152 nonfatal injuries) related to booster seats reported to have occurred from January 1, 2008 through October 31, 2017. This total includes 45 new booster seat-related incidents reported since the NPR<sup>4</sup> (collected between October 1, 2016 and October 31, 2017). None of the newly reported incidents is a fatality. All of the new incidents fall within the hazard patterns identified in the NPR. Retailers and manufacturers reporting through the CPSC’s “Retailer Reporting Program” account for 93 percent of the reports (42 out of 45 incidents). CPSC received the remaining three incident reports from consumers using SaferProducts.gov. Field staff followed up on one of the incident reports with an in-depth investigation.

#### *1. Fatalities*

As reported in the NPR, both fatalities occurred in 2013. One fatality involved a 22-month-old female seated in a booster seat attached to an adult chair, who pushed off from the table and tipped the adult chair backwards into the glass panel of a china cabinet behind her. The death certificate reported the cause of death as “exsanguination due to hemorrhage from incised wound.” The other fatality was a 4-year-old male who fell from a booster seat to the floor; he seemed unhurt at the time, but later the same evening, when he fell while riding his bike, he became unresponsive and later died. The death certificate listed the cause of death as multiple blunt-force trauma.

#### *2. Nonfatal Incidents*

Of the 45 new reported incidents, six reported an injury, including one hospitalization for multiple skull fractures after the child fell when the seatback of the booster seat detached completely. The other injuries mostly involved contusions, abrasions, and lacerations, due to falls, rough product surfaces, or finger entrapment.

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<sup>4</sup> Data discussed in the NPR was collected from January 1, 2008 through September 30, 2016.

No injuries occurred or the report did not mention any injuries occurring for the remaining 39 new incident reports. However, staff's review of these incident report descriptions indicated the potential for a serious injury or even death.

### 3. Hazard Pattern Characterization Based on Incident Data

Staff's hazard pattern characterizations are summarized below and are based on the incident data since the NPR.

- a) *Specific component-related*
  - i. **Restraints** (secures child in seat) or **attachment system** (secures booster seat to the adult chair) account for 22 of the 45 incidents (49 percent). Restraint system and seat attachment system problems were similar: anchor buckles/clasps/straps breaking, tearing, fraying, detaching, or releasing. In three cases, the language in the report was unclear whether the "buckle/strap" problem referred to the buckle/strap of the restraint or the attachment system. No injuries were reported in this category.
  - ii. **Tray**-related issues reportedly occurred in 18 (40 percent) of the 45 incident reports. The incidents involved paint finish peeling off and pinch points associated with the tray design. Two pinch injuries were reported in this category.
  - iii. The booster **seatback** detaching in one of the 45 incidents (2 percent) resulted in a child falling and sustaining multiple skull fractures; the child was hospitalized.
- b) *General product-related*
  - i. **Miscellaneous other** product-related issues, such as poor quality construction and rough edges on the product were reported in two of the 45 (4 percent) new reported incidents. One of the incidents, reporting a rough edge, resulted in a laceration injury.
  - ii. One of the 45 new incidents (2 percent) reported that the **design** of the booster seat failed to contain/support the child, which led to a fall injury.
- c) *Other*
  - i. Insufficient information was provided in one of the 45 incidents (2 percent); as such, CPSC staff categorized the problem as **unclear**. The child involved in the incident reportedly suffered a fall injury.

Other hazard patterns that were identified in the NPR data included problems with the booster seat *armrests* breaking and cracking; and *stability* issues with the seat itself, or with the adult chair to which the seat was attached. Neither of these issues, nor any new issues, were reported in the 45 new incidents.

#### 4. National Injury Estimates

CPSC staff estimates a total of 12,000 injuries (sample size=455, coefficient of variation=0.10) related to booster seats treated in U.S. hospital EDs over the 9-year period 2008 to 2016. The source of the injury estimates is the National Electronic Injury Surveillance System (NEISS), a statistically valid injury surveillance system.<sup>5</sup> When Epidemiology staff wrote its memorandum, new ED injury data were available for 2016, but not for 2017. Therefore, staff presents the injury estimates and injury characteristics for the aggregate data from 2008 through 2016.

The estimates for 2016, and some of the other individual years between 2008 and 2016, are not reportable per NEISS publication criteria.<sup>6</sup> However, staff did not observe any increasing or decreasing trend in the data over the 9-year period.

No deaths were reported through the NEISS. About 64 percent of the injured were under 2 years of age; among the remaining, 24 percent, 8 percent, and 4 percent were 2-year-olds, 3-year-olds, and 4-year-olds, respectively. For the ED-treated injuries related to booster seats, the following characteristics occurred most frequently:

- Hazard – falls out of the booster seat (97 percent). Most of the falls were due to:
  - Unspecified circumstances (55 percent).
  - Unspecified tip overs (18 percent); tip overs due to child pushing back or rocking in seat (6 percent).
  - Booster seat attachment or child-restraint mechanism failure/defeat/non-use (8 percent).
- Injured body part – head (58 percent), face (22 percent), and mouth (7 percent).
- Injury type – internal organ injury (40 percent), lacerations (24 percent), and contusions/abrasions (19 percent).
- Disposition – treated and released (about 98 percent).

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<sup>5</sup>NEISS injury data are gathered from emergency departments of hospitals that are selected as a probability sample of all the U.S. hospitals with emergency departments that are open 24 hours a day and have at least six beds. The surveillance data gathered from the sample hospitals enable CPSC staff to make timely national estimates of the number of injuries associated with specific consumer products.

<sup>6</sup>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.

## **B. Staff's Assessment of F2640-18**

As stated in the NPR, staff concluded that ASTM F2640-17<sup>e1</sup> adequately addressed the hazard patterns identified in the incident data. Since the NPR, the ASTM subcommittee updated the standard in 2018 to include performance and testing requirements for a new style of booster seats that attached to the adult chair backrest. In addition, ASTM clarified testing requirements for measuring the maximum adult chair measurements, and added a new warning statement to the instructional literature. Staff evaluated the new provisions (Tab C) and concludes that these changes strengthen the safety requirements in the standard.

## **C. Staff's Responses to NPR Comments**

The Commission's 2017 NPR solicited information and comments concerning all aspects of the proposed rule, including the proposed 12-month effective date for the new mandatory rule, including food-service booster seats, and amending part 1112. CPSC received eight comments on the NPR. Four commenters expressed general support for the NPR. Two commenters requested that the final rule be delayed to allow time for the ASTM standard to be updated with then-pending ASTM ballot items related to a new type of booster seat and clarification of a testing procedure. Two commenters disagreed with including food-service booster seats in the current rulemaking and requested that a new, separate standard be established for food-service style booster seats. One manufacturer of food-service booster seats asked for a 2-year effective date for the final rule. Comments submitted on the NPR and other supporting documentation are available at: [www.Regulations.gov](http://www.Regulations.gov), by searching docket no. CPSC-2017-0023.

Based on the comments received, for the final rule, CPSC staff does not recommend making any changes to the current voluntary standard. Staff concludes that the new F2640-18 version of the voluntary standard addressed the two issues raised for which commenters requested a delay. Commenters failed to demonstrate that food service style booster seats are so different from home-use booster seats to warrant a separate standard and, therefore, should meet F2640-18. In addition, the current version of the voluntary standard does not prevent food-service style booster seats from having friction grip feet on the bottom of the seat. However, food-service booster seats will require another means to attach to an adult chair to pass the performance requirement in the standard. Commenters explaining the remolding process for plastic and foam booster seats convinced staff to recommend an extension of the effective date for the final rule from the proposed 12-month period to 18 months, as discussed in staff's comment responses and in section IV.F below. Tab B contains CPSC staff's responses to the comments.

#### **D. Potential Small Business Impact**

Staff identified 44 domestic firms supplying booster seats to the U.S. market. Based on U.S. Small Business Administration guidelines, 29 of the 44 domestic firms are small businesses, including 19 manufacturers, 9 importers, and 1 firm with an unknown supply source.

Additionally, staff identified two foreign manufacturers, as well as numerous booster seats entering the U.S. market via online retailers and foreign retailers.

Staff concludes that it is unlikely that there would be a significant economic impact on the eight small manufacturers and two small importers of booster seats that are already compliant with the existing voluntary standard. However, CPSC staff cannot rule out a significant economic impact for any of the 19 suppliers of noncompliant booster seats (11 manufacturers, seven importers, and one unknown type). Accordingly, staff prepared a Final Regulatory Flexibility Analysis, located in Tab D. To minimize the economic impact on noncompliant small manufacturers and importers, staff recommends that the Commission allow for a longer, 18-month effective date for the final rule. An 18-month effective date would reduce the economic impact on firms, by allowing them more time to adjust their designs and tooling to avoid a lapse in production/importation. Additionally, a longer effective date allows firms to spread the cost of any redesign over a longer period, reducing annual costs, as well as the present value of their total costs.

#### **E. Notice of Requirements**

As explained in the briefing package for the NPR, 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. That certification must be based on testing by a CPSC-accepted third party conformity assessment body (test laboratory). The CPSA requires the Commission to issue a notice of requirements (NOR) for the accreditation of third party testing laboratories, to determine compliance with children's product safety rules, such as the booster seats rule. Accordingly, in the booster seats NPR, the Commission proposed to amend the regulation that codifies the NORs (16 CFR part 1112), so that it would include an NOR for the booster seats standard. The draft final rule includes a provision to finalize the NOR.

#### **F. Effective Date of Final Rule**

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 NPR proposed a 12-month effective date, however, comments received from manufacturers affected by the regulation

requested a longer effective date. As explained in the comments, the remolding process for plastic and foam booster seats, in “best case scenarios,” could take 12 months, but in “worst case scenarios,” could take up to 2 years. Therefore, recognizing that worst-case scenarios are likely to be rare, staff recommends an 18-month effective date for the final rule. The additional time will accommodate 19 suppliers of booster seats that are not currently in compliance with the voluntary standard. Some of these manufacturers will need to make design changes to their molds to meet the new regulation. Thus, a longer effective date will allow for this re-design process, as well as allow these firms to spread the costs of re-design over a longer period of time.

### **G. Recalls**

Compliance staff reviewed recalls of booster seats that occurred from January 1, 2008 to May 30, 2018. During that time, two consumer-level recalls involved booster seats. Both recalls involved a fall hazard. One recalled product was associated with a fall hazard when the stitching on the booster seat’s restraint straps loosened, allowing the straps to separate from the seat and the child to fall out of the seat. Another recall involved the booster seat restraint buckle, which opened unexpectedly, allowing a child to fall from the chair and be injured.

## **V. STAFF RECOMMENDATIONS**

CPSC staff recommends that the Commission issue the draft final rule for booster seats, incorporating by reference, ASTM F2640-18, *Standard Consumer Safety Specifications for Booster Seats*, without any modifications. CPSC staff concludes that ASTM F2640-18 will adequately address the hazard patterns identified in the incident data associated with booster seats. Staff recommends that the Commission provide an effective date of 18 months after publication of the final rule for products manufactured or imported on or after that date to come into compliance. Staff also recommends that the Commission amend 16 C.F.R. part 1112, which would establish the NOR for testing laboratories that want to test booster seats for compliance with the final rule.

**TAB A: Booster Seats-Related Deaths, Injuries, and  
Potential Injuries Reported Between October 1, 2016 –  
October 31, 2017**

**T  
A  
B  
A**



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

## **Memorandum**

Date: December 8, 2017

**TO :** Celestine Kish  
Booster Seats Project Manager  
Division of Human Factors  
Directorate for Engineering Sciences

**THROUGH:** Stephen Hanway  
Division Director, Hazard Analysis, EPHA  
Directorate for Epidemiology

**FROM :** Risana Chowdhury  
Division of Hazard Analysis  
Directorate for Epidemiology

**SUBJECT :** Booster Seats-Related Deaths, Injuries, and Potential Injuries Reported  
Between October 1, 2016 – October 31, 2017<sup>1</sup>

## **Introduction**

This memorandum updates the data in the Booster Seats notice of proposed rulemaking (NPR) briefing package presented to the Commission in May 2017. Staff extracted data to support the NPR on October 21, 2016, and included all incidents reported to have occurred from January 1, 2008 through September 30, 2016. This memorandum includes any newly reported booster seat-related incidents from the 2008 to September 2016 timeframe, as well as all reported incidents that occurred between October 1, 2016 and October 31, 2017. In addition, the 2016 data for CPSC's National Electronic Injury Surveillance System (NEISS) database containing injury reports received through emergency departments (EDs) are now complete. Accordingly, this

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<sup>1</sup> CPSC staff prepared this analysis, which has not been reviewed or approved by, and may not necessarily reflect the views of, the Commission.

memorandum includes the national injury estimates related to booster seats and the associated injury characteristics for all 9 years from 2008 through 2016.

## **Incident Data<sup>2</sup>**

Since the NPR, CPSC staff has received a total of 45 new incident reports related to booster seats. Fifty-three percent of the incidents were reported to have occurred between October 2016 and October 2017 (*i.e.*, post-NPR timeframe); the remaining 47 percent were newly reported incidents that occurred during the timeframe covered in the NPR.

CPSC received information on 93 percent (42 out of 45) of the incidents from reports submitted by manufacturers and retailers through CPSC's "Retailer Reporting Program."

No fatalities associated with the use of booster seats were among the new incident reports; six reported an injury, including one hospitalization. Table 1 provides the reported age breakdown of the children from the 45 incident reports.

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<sup>2</sup> The data discussed in this section comes from CPSC's database entitled the Consumer Product Safety Risk Management System (CPSRMS). These reported deaths and incidents do not provide a complete count of all that occurred during this period. However, they do provide a minimum number of incidents occurring during this period and illustrate the circumstances involved in the incidents related to booster seats.

CPSC staff extracted the reported incident data on November 3, 2017. Staff extracted all data coded under product codes 1556 (*Attachable high chairs including booster seats*) and identified the booster seats-related incidents. Upon careful joint review with CPSC's Directorates for Engineering Sciences and Economics, staff considered many incidents out-of-scope for the purposes of this memorandum. For example, staff excluded incidents involving hook-on chairs (which are also coded as 1556), incidents where the product was not being used as a booster seat, or incidents where the child involved was older than the manufacturer-recommended age (up to 5 years). Except for incidents occurring on U.S. military bases, staff also excluded all incidents that occurred outside of the United States. To prevent any double-counting, when staff identified multiple reports of the same incident, staff consolidated the incidents and counted them as one incident.

**Table 1: Age Distribution in Booster Seats-Related Incident Reports  
Reported Between 10/01/16–10/31/17**

<i>Age of Child</i>	<i>All Incidents</i>		<i>Injuries</i>	
	<i>Frequency</i>	<i>Percentage</i>	<i>Frequency</i>	<i>Percentage</i>
Unreported*	11	24	3	50
One – Six Months	6	13	1	17
Seven – Twelve Months	13	29	1	17
Thirteen – Eighteen Months	6	13	1	17
Nineteen – Twenty-Three Months	3	7	--	--
Two Years	6	13	--	--
<b><i>Total</i></b>	<b><i>45</i></b>	<b><i>100</i></b>	<b><i>6</i></b>	<b><i>100</i></b>

Source: CPSC epidemiological database CPRMS.

Percentages may not add up to 100 due to rounding.

\* Age may be “unreported” under two circumstances: age was unknown, or age was not reported because the incident involved no injury. Following the ASTM F2640 user-age recommendations, CPSC staff set 4 years as the upper-age limit in the incident data search criteria.

### *Injuries*

Of the six injuries reported among the new incidents, one required hospitalization of a 4-month-old who fell when the seatback of the booster seat detached completely; the infant suffered multiple skull fractures. The remaining injuries resulted mostly in contusions, abrasions, and lacerations due to falls, rough product surfaces, or finger entrapments.

The remaining 39 new incident reports specified that no injury had occurred, or provided no information about any injury. However, many incident descriptions indicated the potential for a serious injury, or even death.

### *Hazard Pattern Identification*

CPSC staff found no new hazard patterns among the new incidents when compared to those found in the NPR data. Staff determined that most of the issues were product-related, with most related to a specific component of the booster seat and a handful associated with more general problems with the product.

Similar to the NPR, the hazard patterns identified from the data are presented within broad categories, with multiple sub-categories within each. In order of descending frequency of incidents, the hazard patterns were as follows:

A. Specific component-related

- a. Twenty-two of the 45 incidents (49 percent) were attributed to the **restraint** or **attachment system**. The child restraint system keeps the child secure in the seat, while the attachment system secures the booster seat to the adult chair. Restraint system problems included buckles/prongs breaking, jamming, releasing too easily, or separating from straps; straps tearing or fraying, pinching, or coming undone. Complaints about the seat attachment system were similar: anchor buckles/clasps/straps breaking, tearing, fraying, detaching, or releasing. In three cases, the language in the report was unclear whether the “buckle/strap” problem referred to the buckle/strap of the restraint or the attachment system. No injuries were reported in this category.
- b. **Tray**-related issues were reported in 18 (40 percent) of the 45 incident reports. The problems reported were about the paint finish peeling off or about the pinch points associated with the tray design that posed a danger for little fingers, the latter resulting in the two injuries in this category.
- c. One of the 45 incidents (2 percent) reported the booster **seatback** detaching altogether, allowing the child to fall and sustain multiple skull fractures. The child required hospitalization.

B. General product-related

- a. **Miscellaneous other** product-related issues, such as poor quality construction and rough edges on the product were reported in two of the 45 (4 percent) new reported incidents. One of the incidents, reporting a rough edge, resulting in a laceration injury.
- b. One of the 45 new incidents (2 percent) reported that the poor **design** of the booster seat failed to contain/support the child and led to a fall injury.

C. Other

- a. Insufficient information was provided in one of the 45 incidents (2 percent); as such, CPSC staff categorized the problem as **unclear**. The child involved in the incident was reported to have suffered a fall injury.

Other hazard patterns that were identified in the NPR data included problems with the booster seat **armrests** breaking and cracking; and **stability** issues with the seat itself or with the adult chair to which the seat was attached. Neither of these issues, nor any new issues, were reported in the 45 new incidents.

## National Injury Estimates<sup>3</sup>

Since the NPR, new ED injury data have become available for 2016. However, the estimates for 2016 are not reportable per NEISS publication criteria.<sup>4</sup> Accordingly, staff presents the injury estimates and injury characteristics for the aggregate data from 2008 through 2016.

CPSC staff estimates a total of 12,000 injuries (sample size=455, coefficient of variation=0.10) related to booster seats were treated in U.S. hospital EDs over the 9-year period from 2008 through 2016. Currently, NEISS data for 2017 are not complete. Similar to 2016, staff cannot report injury estimates for some of the other individual years because of the NEISS publication criteria. Note, however, that staff did not observe any increasing or decreasing trend in the data over the 9-year period.

No deaths were reported through the NEISS. About 64 percent of the injured were under 2 years of age; among the remaining, 24 percent, 8 percent, and 4 percent were 2-year-olds, 3-year-olds, and 4-year-olds, respectively. For the ED-treated injuries related to booster seats, the following characteristics occurred most frequently:

- Hazard – falls out of the booster seat (97 percent). Most of the falls were due to:
  - Unspecified circumstances (55 percent).
  - Unspecified tip overs (18 percent); tip overs due to child pushing back or rocking in seat (6 percent).
  - Booster seat attachment or child restraint mechanism failure/defeat/non-use (8 percent).
- Injured body part – head (58 percent), face (22 percent), and mouth (7 percent).
- Injury type – internal organ injury (40 percent), lacerations (24 percent), and contusions/abrasions (19 percent).
- Disposition – treated and released (about 98 percent).

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<sup>3</sup> The source of the injury estimates is the National Electronic Injury Surveillance System (NEISS), a statistically valid injury surveillance system. NEISS injury data are gathered from EDs of hospitals selected as a probability sample of all the U.S. hospitals with EDs open 24 hours a day that have at least six beds. The surveillance data gathered from the sample hospitals enable the CPSC staff to make timely national estimates of the number of injuries associated with specific consumer products.

Staff extracted all data coded under product code 1556 (*Attachable high chairs including booster seats*) for patients under age 5 years. Staff considered certain records out-of-scope for the purposes of this memorandum. For example, staff excluded hook-on chair-related incidents that are also covered under product code 1556 or car booster seats incorrectly coded as 1556; and also considered out-of-scope a sibling or a pet knocking over the adult chair holding the booster seat containing the child. Staff excluded these records before deriving the statistical injury estimates.

<sup>4</sup> 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.

## **Incidents in a Restaurant Setting**

In the NPR briefing package, staff noted that while most of the incidents occurred in home settings, one incident report explicitly mentioned a restaurant where an infant was using a booster seat provided by the establishment. Among the new incidents that staff has analyzed and presented here, none occurred at a restaurant.

Among the NEISS ED-treated injury data, from 2008 to 2016, 31 injury reports explicitly mentioned the injury to have occurred in a restaurant setting. While these 31 reports are included in the larger sample that yielded the total estimated injury of 12,000, a national injury estimate for restaurant injuries *only* does not meet the NEISS publication criteria<sup>4</sup> and is not presented here. Staff reviewed the injury characteristics in these reports, which indicated that all of the injuries resulted from falls, but the circumstances were unspecified for the most part. Specifically, staff cannot discern from the injury reports whether the booster seats involved were provided by the establishment.

**TAB B: Staff's Response to Public Comments to the NPR  
for Booster Seats**

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

**Memorandum**

Date: March 9, 2018

TO : Celestine T. Kish, Booster Seat Project Manager  
Division of Human Factors  
Directorate for Engineering Sciences

THROUGH: Joel R. Recht, Ph. D.  
Associate Executive Director  
Directorate for Engineering Sciences

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

Andrew Stadnik, P.E.  
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Rana Balci-Sinha, Ph.D.  
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Division of Human Factors  
Directorate for Engineering Sciences

Robert L. Franklin  
Senior Staff Coordinator  
Directorate for Economic Analysis

Michael Nelson  
Director  
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Directorate for Laboratory Sciences

FROM : Jill Hurley, Engineering Psychologist, Division of Human Factors, Directorate  
for Engineering Sciences

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

Maxwell Sanborn, Mechanical Engineer, Division of Mechanical Engineering,  
Directorate for Laboratory Sciences

SUBJECT : Staff's Responses to Public Comments to the NPR for Infant Booster Seats

## I. Introduction

On May 19, 2017, the Consumer Product Safety Commission (CPSC) published a notice of proposed rulemaking (NPR) in the *Federal Register* that would create a mandatory safety standard for booster seats. 82 *Fed. Reg.* 22,925. The NPR proposed to incorporate by reference the then-current voluntary ASTM International (ASTM) standard for booster seats (F2640-17<sup>e1</sup>) with no modifications.

CPSC received eight comments on the NPR. Four commenters generally supported the NPR. One commenter supported the NPR, but requested that CPSC wait to finalize the rule to include the next version of the voluntary standard, which would include two open ASTM ballot items. Another commenter also suggested that CPSC delay the final rule until the ASTM standard is revised to include a new booster seat design that attaches to an adult chair by hooking over the top back of the chair. Finally, two commenters stated that booster seats manufactured for food service establishments should be exempt from the mandatory standard, or be subject to a different standard.

Below staff summarizes each significant issue raised by the commenters and provides staff's response.

## II. Response to Comments

*Comment 1:* One commenter stated that ASTM F2640-17<sup>e1</sup> should not be the baseline standard for a final rule because this standard does not account for a new booster seat design being sold in the U.S. market, a folding travel booster seat that is supported by hooking onto the top of the adult chair seat back. The commenter requested that the final rule be delayed until pending ballot items addressing this new booster seat design are approved in the ASTM process and a new version of the standard is published incorporating requirements for this new design. Another commenter noted that two ballot items were under review by ASTM, and would likely be incorporated into a new version of ASTM F2640 in 2018. One open item would clarify the intent of the maximum booster seat dimension test, to ensure consistency among testing laboratories, and the second item was the new hook-on booster seat design. This commenter also stated that the final rule should incorporate the next version of the voluntary standard that incorporates the two open ballot items, to avoid “marketplace confusion, interpretation issues for testing labs, and increased costs to manufacturers.”

*Response 1:* CPSC staff agrees that the final rule should incorporate by reference the new version of the voluntary standard, ASTM F2640-18. Since the NPR, ASTM published a new version of the standard containing three changes that address the commenters' concerns, including: (1) requirements for a new folding booster seat design that attaches to the back of an adult chair, (2) clarifications to the testing procedure to ensure that the maximum booster seat dimensions test is performed while in the manufacturer's recommended installation configuration, and (3) clarification in the instructions to state that certain booster seats should

only be used with children that can sit up unassisted. CPSC staff agrees with the changes incorporated into ASTM F2640-18, which strengthen the safety requirements in the standard.

*Comment 2:* Two manufacturer-commenters contend that food-service booster seats should not be covered under ASTM F2640, with one proposing that a separate commercial standard be developed. These commenters said that food-service booster seats have simple designs intended solely to be positioned easily alongside, and raised to a height for a child to eat at a dining table. Commenters noted several elements that make food-service booster seats different from home-use booster seats, including: (1) less-confined designs to accommodate bulky outerwear; (2) generally smaller size booster seats?; (3) tray-less seats; (4) not adjustable (no swiveling or reclining); and (5) typically use attachment methods like anti-skid pads or raised rubber feet which can accommodate restaurant seating such as booths and benches, which belts and straps cannot.

One manufacturer-commenter noted that the level of supervision of children in restaurants is greater than in homes, where children may be left unattended while eating. The commenter stated that this makes food-service booster seat designs, which are completely appropriate for restaurant use, potentially risky in home settings. Rather than address this under the current regulation, however, the commenter suggested a separate regulation for food-service booster seats that focuses on elements that ensure proper use, such as more stringent warnings and instructional literature (in particular not using food-service booster seats outside of commercial settings and not leaving children unsupervised during use) and educating end users and wait staff.

Consumer advocate commenters agreed with the NPR that food-service booster seats should be included under the mandatory standard because the products are available for sale to consumers and consumers use the products in restaurants, and restaurant-style booster seats should provide the same measure of safety.

*Response 2:* The Commission recognized in the NPR that food-service booster seats vary in design and where they will be used, and that the attachment requirement in ASTM F2640 may require a design change for some food-service booster seats. Accordingly, the NPR invited commenters to provide information on the effects of ASTM F2640-17<sup>e1</sup>'s attachment requirements becoming mandatory on booster seats that currently use grip feet/friction bottoms to secure the booster seat to the surface upon which it sits. Additionally, the NPR solicited comments regarding the capability of suction cups to comply with performance requirements.

While the Commission agrees that some differences exist between food-service booster seats and booster seats intended for home-use, the commenters did not provide sufficient, specific information to support the assertion that food-service booster seats should not be

covered under ASTM F2640; nor did they provide cost estimates for varying designs, other than generically stating that the process of compliance would be costly and time-intensive. Accordingly, despite CPSC staff's interviews with affected parties and careful review of the comments, the Commission has not identified any inherent differences between the two products that would prevent food-service booster seats from meeting the mandatory standard while remaining fundamentally the same product. For example, although no food-service booster seats have trays, trays are not required to meet the booster seat draft final rule. If a booster seat does not have a tray, the requirements, tests, warnings, and instructions related to trays are not required. As another example, although it is true that anti-skid pads and raised rubber feet would not be considered attachment methods under the mandatory standard, they may still be used *in addition to* an attachment method like a belt, strap, or suction cup. The Commission concludes that food-service booster seats can likely meet the new standard by adding a belt, for example, while retaining the anti-slip mechanism they were already using.

Section 6.5 of the ASTM F2640 (2017<sup>e1</sup> and 2018 versions) requires a mechanism of attaching a booster seat to an adult chair, but it does not require the attachment mechanism to be a strap. Although it is true that a strap attachment would not work on a bench or booth, non-strap attachment methods could be used to secure a booster to a bench, such as suction cups. Additionally, ASTM F2640 does not state any specific requirements for booster seats used on a booth or bench-type seating. Under the standard, booster seats are tested on an adult chair. The standard requires the attachment method to withstand force requirements. ASTM subcommittee members and CPSC staff agree that "grip feet" or "friction bottoms" are not a sufficient means of fastening a booster seat to an adult chair, regardless of whether the adult chair is a bench or a chair. Some suction cups, however, can be sufficient to withstand the required force in the standard. We note that the majority of booster seat injuries occur when a child, while seated in the booster attached to a chair, pushes off a table with their feet and falls backward. This scenario would not likely take place in a booth.

Based on the foregoing, staff rejects the assertion that food-service booster seats should solely rely on warnings to prevent falls from food-service booster seats. In a food-service environment, booster seats are used on adult chairs and on bench-style seating. Adhering to the mandatory standard for booster seats will ensure that food-service booster seats remain attached to adult chairs under the testing protocol, and will not impede using grip feet for bench-style seating, if that is how manufacturers choose to address this issue. Additionally, nothing in the draft final rule would prevent food-service booster seat suppliers from providing additional warnings and instructions if they believe it will improve the safe use of their products.

Section 104 of the CPSIA requires the Commission to promulgate a booster seat standard that is either "substantially the same as" the voluntary standard or "more stringent than" the voluntary standard. Accordingly, if CPSC were to modify the ASTM standard, varying a

requirement for food-service booster seats would need to be based on a determination that such a change would result in a booster seat standard that is either substantially the same as the voluntary standard or more stringent. The commenters have not provided any safety rationale or cost estimates for excluding food-service booster seats from the final rule. None of the suggestions presented by commenters would result in a standard “substantially the same as” or “more stringent than” the voluntary standard, which is the statutory requirement. Therefore, staff does not recommend modifying the booster seat requirements for food-service booster seats as part of the mandatory standard, but staff recommends providing additional time for booster seats to comply with the new standard, as reviewed below in response to Comment 6.

*Comment 3:* One commenter stated that booster seats using suction as a means of attachment should be required to pass the attachment test in ASTM F2640-17<sup>e1</sup> to comply.

*Response 3:* CPSC staff agrees that, regardless of the means of attachment, all booster seats must meet the requirements of F2640-18, section 6.5. These requirements include not allowing the booster seat to fall off the adult chair and not breaking but remaining functional after applying a 45-pound force horizontally five times to the center of the front of the booster. The requirements do not prescribe how the seat should be attached to the adult chair.

*Comment 4:* One commenter questioned the applicability of placing warning labels on commercial booster seats because of size limits on restaurant-style booster seats. The commenter indicated that the distance from the seat surface to the top of the side walls of a restaurant-style seat ranges from 3 inches to 5 inches, which restricts the space for labeling. Therefore, the commenter requested conspicuous labeling to include the seat surface.

*Response 4:* The most recent version of the voluntary standard applicable to booster seats, ASTM F2640-18, requires the warning label to be conspicuous. A “conspicuous label” is defined in the standard as a “label which is visible, when the product is in the manufacturer’s recommended use position, to a person standing at the sides or front of the booster seat” (ASTM F2640-18, section 3.1.1). Accordingly, the definition of “conspicuous label” in the standard does not preclude use of the seat surface for the warning label placement because the seat surface is visible to a person standing at the sides or front of the booster seat.

Additionally, to confirm comments that a side-wall height range of 3 inches to 5 inches would restrict warning placement, staff generated mock warning labels that meet the ASTM F2640-18 requirement for signal word and font size in section 8.4.5 (see Figure 1 and 2). Staff placed copies of the warning labels on an exemplar restaurant booster seat with limited side-wall height. Figure 3 shows an exemplar booster seat with a side-wall height of approximately 3 inches with staff’s mock warning label, version two.

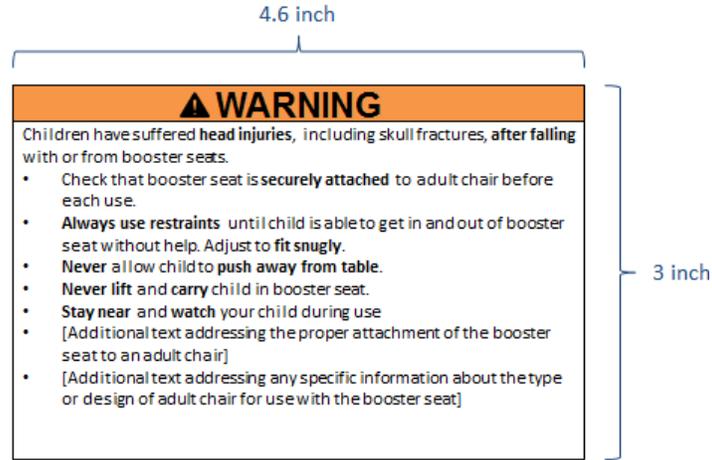


Figure 1. Staff’s mock warning label version one.

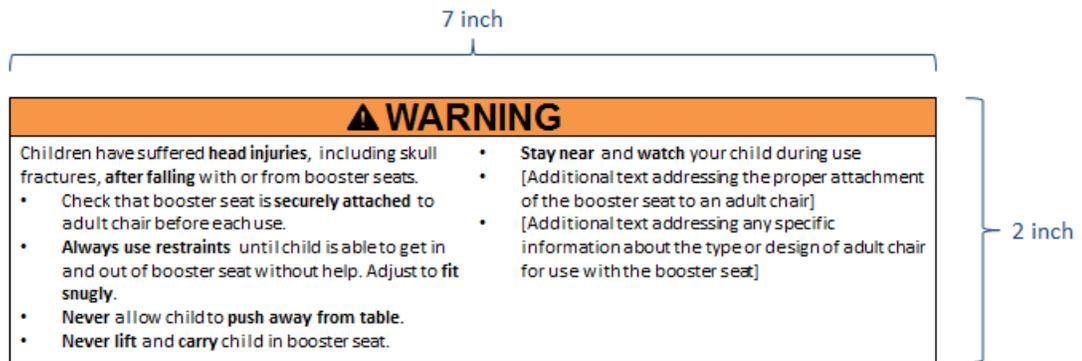


Figure 2. Staff’s mock warning label version two.



Figure 3. Exemplar restaurant booster seat with mock warning label version two.

Figure 3 demonstrates that the label can be placed on products with limited side-wall space; thus, manufacturers have the flexibility to place the warning label on the seat surface, or on the seat's vertical wall.

*Comment 5:* One commenter urged CPSC to work with manufacturers to use design and visual cues, such as pictograms, to ensure that warnings are conveyed effectively to people with limited or no English literacy.

*Response 5:* Staff acknowledges that well-designed graphics, such as pictograms, can be useful for consumers with limited or no English literacy. However, the design of effective graphics can be difficult. Some seemingly obvious graphics are poorly understood and can lead to interpretations that are opposite of the intended meaning (so-called "critical confusions"). To avoid confusion, a warning pictogram should be developed with an empirical study and it should be well-tested on the target audience. Although staff could recommend that the Commission take action in the future if staff believes graphic symbols are needed to reduce the risk of injury associated with these products, incident data do not currently support the need for graphic symbols.

*Comment 6:* The Commission received four comments on CPSC's proposed 12-month effective date for the booster seats mandatory standard. One comment, submitted by three consumer advocate groups, supported a 6-month effective date (which they seemed to believe, mistakenly, was the Commission's proposal). Two commenters, a juvenile product manufacturers' association and a private citizen, supported the proposed 12-month effective date; although the private citizen said that they would also support an even longer effective date, to reduce the economic impact on small firms. A fourth commenter, a small manufacturer of food-service booster seats, suggested a 2-year effective date, to allow additional product-development time. The commenter stated: "compliance may require the costly and time intensive process of developing and building new tooling to comply with the Standard."

In a follow-up call with Commission staff (documented in the public record), the fourth commenter elaborated on the request for a 2-year effective date, stating that for their booster seats to come into compliance with the revised ASTM standard, they would need to design and test new plastic molds. Creating a new mold includes researching and developing a new design, initial tool-building to implement the design, and then testing the resulting product. The commenter stated that the entire process takes longer for firms like theirs, because their mold maker is located overseas. Therefore, if changes to the mold are required after testing the new product, the turnaround time is longer than if all the work were conducted domestically. According to the commenter, if the design process goes perfectly, with no required changes, their booster seats could be redesigned in time to meet the 12-month effective date. The request for a

2-year effective date was based on the design process for plastic molds, and the potential need to create and test several iterative designs.

*Response 6:* Staff recognizes that longer effective dates minimize the impact on affected firms. The initial regulatory flexibility analysis (IRFA) found that a significant economic impact could not be ruled out for 69 percent of the small firms operating in the U.S. market. Staff additionally believes that many of those firms might not be aware of the ASTM voluntary standard or the CPSC booster seat rulemaking, particularly food-service booster seat suppliers, who make up one-third of the small suppliers for whom a significant impact could not be ruled out. The information supplied by the fourth commenter on the time and cost involved in designing and producing new plastic molds is consistent with information supplied by CPSC engineers, along with the longer time frame required for firms conducting some of their redesign overseas. Staff engineers indicated that foam products would require new molds as well, which likely will require similar cost and time investments.

Based on the totality of this information, staff concluded that a 12-month effective date likely represents a “best-case” scenario for many affected firms, and that 2 years likely represents a “worst-case” scenario for firms to come into compliance. Staff also believes, based on this information, that firms designing and/or testing their molds domestically, rather than overseas, should be able to meet shorter timelines, both in “best-case” and “worst-case” scenarios. After considering the information provided by commenters, staff recommended an 18-month effective date for all firms to come into compliance with the final rule. An 18-month effective date balances the need for improved consumer safety, with reducing the impact of the final rule on small firms.

Although some firms using molds may require iterative designs to meet the standard, the 2-year time estimate for product redesign using molds applies to cases in which a mold must be modified several times, and for work conducted overseas. Not all firms use molds, not all firms have molds made overseas, and not all firms will encounter difficulty with their molds and require a full 2 years for their iterative changes. Additionally, not all products will require a complete redesign. Some products already meet the ASTM voluntary standard, and the anticipated product modifications (straps and/or more secure means of attachment) in those cases are not complex and should not fall within the “worst-case” scenario requiring a 2-year redesign process.

Moreover, providing additional time for firms to come into compliance reduces burden by allowing firms: (1) firms to spread out design and testing costs over a longer period; (2) firms that are currently unaware of the voluntary standard or the rulemaking effective date to come into compliance; and (3) firms that must redesign a plastic or foam product to accommodate the

design, tooling, and testing adjustments that may be required during the product redesign process.

**TAB C: Booster Seat Rulemaking: LSM Assessment of  
F2640**

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

## Memorandum

DATE: March 9, 2018

TO : Celestine Kish, Project Manager, Booster Seats Rulemaking  
Division of Human Factors, Directorate for Engineering Sciences

THROUGH: Andrew Stadnik, P.E.  
Associate Executive Director  
Directorate for Laboratory Sciences

Michael Nelson  
Director  
Division of Mechanical Engineering  
Directorate for Laboratory Sciences

FROM : Maxwell Sanborn  
Mechanical Engineer  
Division of Mechanical Engineering  
Directorate for Laboratory Sciences

SUBJECT : Engineering Assessment of ASTM F2640 Requirements for Booster Seats

### I. Introduction

This memorandum conveys staff assessment of the effectiveness of ASTM F2640-18, *Standard Consumer Safety Specification for Booster Seats*. Staff provides this assessment in accordance with the Danny Keysar Child Product Safety Notification Act, Section 104 of the Consumer Product Safety Improvement Act (CPSIA).

ASTM F2640-18 defines a “booster seat” as a “juvenile chair, which is placed on an adult chair to elevate a child to standard dining table height.” The booster seat is made for the purpose of containing a child, up to 5 years of age, and normally for the purposes of feeding or eating. A booster seat may be height adjustable, and may include a reclined position. Figure 1 shows a typical booster seat.



Figure 1: Typical booster seat.

## II. History of ASTM F2640, Standard Consumer Safety Specification for Booster Seats

The voluntary standard for booster seats was first approved and published in 2007, as ASTM F2640-07, *Standard Consumer Safety Specification for Booster Seats*. ASTM has revised the voluntary standard several times since then. The current version, ASTM F2640-18, was approved and published in April 2018. Summaries of the changes made in each revision of the standard are listed below.

ASTM F2640-07 established requirements to address the following safety issues:

- Sharp points
- Sharp edges
- Small parts
- Lead and other toxic substances in paints
- Wood parts
- Scissoring, shearing, and pinching
- Finger entrapment
- Tray impact testing
- Tray engagement testing
- Static load testing
- Child restraint system testing
- Seat attachment testing
- Structural integrity (dynamic load) testing
- Marking and labeling
- Instructional literature

ASTM F2640-07e1 (approved 9/15/2007) clarified language in the standard. These clarifications included:

- Inserting missing language from section 1.5, to include “The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.”
- Changing “restraints” to “attachment means” in sections 7.4, 7.5.1.1 and 7.5.2.1
- Changing “release” to “locking mechanism” in section 7.4.2.1
- Changing “seating surface of the adult chair” to “floor” in section 7.5.2.1
- Adding “maximum” in front of the word “weight” in section 7.5.1.3
- Changed “23 kg” to “22.7 kg” in section 7.7.4

ASTM F2640-09 (approved 7/15/2009) improved the test for restraints. The improvements included the following changes:

- Adding a new subsection after section 7.6.1 that states “Place a restraint system test harness (see Fig. 4) on a CAMI Infant Dummy Mark II (see Fig. 2), in accordance with the Department of Transportation specification, position the horizontal belt just below the arms, and adjust the horizontal belt snugly around the torso.”
- Adding a figure of the Restraint System Test Harness

ASTM F2640-10 (approved on 4/1/2010) included the following changes:

- Adding 6.5.2, which states: “If straps/belts are used as the means of attaching a booster seat to an adult chair they shall be capable of adjustment with a positive, self-locking mechanism that is capable, when locked, of withstanding the forces of tests in 7.6.5 without allowing the strap/belt to slip more than 1 in. and shall not break or separate.”
- Adding the following language to section 7.4.2.1: “If the design does not allow for a force gauge attachment to the side of the tray, due to the locking mechanism location, a drill hole on the top surface of the tray may be employed as a means of attaching the force gauge.”
- Adding the following language to section 7.6.5: “and the adult chair straps/belts (if included with the product)”
- Adding the following language to section 9.1: “The warning statements shall be in contrasting color(s), permanent, conspicuous, and sans serif style font. In warning statements, the safety alert symbol “Δ” and the word “WARNING” shall not be less than

0.2 in. (5 mm) high. The remainder of the text shall be characters whose upper case shall be at least 0.1 in. (2.5 mm) high.”

ASTM F2640-11 (approved 6/1/2011) included the following changes:

- Combining section 7.5.1.3 with section 7.5.1.2, so that section 7.5.1.2 stated “Gradually apply a static load, using a bag 6 to 8 in. (150 to 200 mm) in diameter with steel shot as the mass in the bag, of 100 lb (45 kg) or 3 times the maximum weight of the child recommended by the manufacturer, whichever is greater, on the center of the seating surface for a period of 5 s and maintain for an additional 60 s.”
- Combining section 7.7.4 with section 7.7.3, so that section 7.7.3 stated “Perform a drop test using a 50-lb (22.7-kg) bag drop weight of 6 to 8-in. (150 to 200-mm) diameter using steel shot as the mass in the bag. The bag will be dropped onto the center of the seating surface from a height of 3 in. (75 mm). The drop is to be repeated 500 cycles. The cycle time is to be 4 s/cycle,  $\pm 1$  s. The drop height is to be adjusted to maintain the 3-in. (75-mm) drop height as is practical.

ASTM F2640-11a (approved 10/1/2011) clarified language in the standard. These clarifications included:

- Changing the numbering system in section 3
- Adding the following language to section 8.2.2 “or tipping over”
- Adding section 8.2.3.3, which stated: “Never allow a child to push away from table.”
- Adding the following language to section 8.2.4 “Always check security of fit to adult chair before each use”

ASTM F2640-12 (approved 11/1/2012) clarified a test procedure.

- The following new wording of the test procedure was added to section 7.5.1.2: “When the manufacturer’s recommended weight exceeds the maximum amount of weight allowed by the bag, then stack additional static weights upon the weight bag ensuring that the total weight is applied in a vertical orientation to the seating surface.”

ASTM F2640-14 (approved 1/1/2014) clarified requirements for warning statements.

- The clarification was made by adding the following language to section 8.3: “The warnings are not required on the retail package if they are on the product and visible in their entirety and are not concealed by the retail package. Cartons and other materials used exclusively for shipping the product are not considered retail packaging.”

ASTM F2640-16 (approved 12/1/2016) included the following changes:

- Adding a new term, “contact surface,” and its definition to section 3, Terminology.
- Adding section 6.7, “Maximum Booster Seat Dimensions.” This section described the process for determining the maximum width, depth (6.7.1), and height (6.7.2) of the booster seat.
- Adding section 7.9, “Maximum Booster Seat Dimensions Test.” This test was added to describe the methodology to measure the maximum width and depth of the booster seat.
- Adding Figures 7 and 8, which show how the width of the booster seat is measured between the left and right contact surfaces.
- Adding Figures 9 and 10, which show how the depth of the seat is measured between the front and rear contact surfaces.
- Adding Section 8.4, which stated: “each retail package shall address either in text or as a diagram or both”, the seat width and depth of an adult chair that the booster seat shall be attached to, and the backrest height, if the booster seat requires attachment to the backrest of an adult chair.
- Adding Figures 11 and 12, which show how the seat depth is measured between the front contact surfaces and rear vertical plane.
- Changing “must” to “shall” in section 9.2.
- Adding in sections 8.2.2, 8.2.3., 8.2.4, and 8.3.2 the language: “and the adult chair dimensional information in 8.4.”
- Adding Figures 13 and 14, which show the backrest attachment means from a horizontal plane to the top of strap slots.
- Adding rationale X1.1, which states: “The requirements in 6.7 were derived from the hazards due to inadequate size requirements in EN 16120 Child Use and Care Articles – Chair Mounted Seat.”

ASTM F2640-17 (approved 3/1/2017) included the following changes:

- Revising section 8.1 increase to the clarity of the marking and labeling language.
- Adding wording to section 8.2 to say: “The marking and labeling on the product shall be permanent.”
- Changing section 8.3 to say: “Any upholstery labeling required by law shall not be used to meet the requirements of this section.”
- Changing section 8.4 to include descriptions of the warning label design and required language for the product. This section replaced the requirements previously stated in 8.2.3 and 8.2.4.
- Adding descriptions of the product warning statements to section 8.5.
- Added descriptions of the required package warning statements to section 8.6.

- Integrating section 8.4 of the prior version into section 8.7.
- Adding Figure 15, which shows possible warning label designs.
- Adding rationale X1.2, which states: “The current Standard Consumer Safety Specification for Booster Seats does not have a requirement to test the attachment means for Booster Seats that utilize a means of attachment other than straps/belts.”

ASTM F2640-17<sup>e1</sup> (approved on 3/1/2017) contained only minor edits unrelated to performance requirements.

ASTM F2640-18 (approved 4/1/2018) included the following changes:

- New performance and testing requirements for new styles of booster seats that attach over the top of adult chair seatback
- Clarification of installation position for measuring booster seats on adult chairs.
- A new warning statement in instructional literature to address booster seats that do not have a recline position.

### **III. Description of ASTM F2640 Performance Requirements**

In addition to the general requirements typically found in children’s products, such as prohibitions of sharp points, sharp edges, small parts, and lead in paints, Section 6 of ASTM F2640-18 also has seven performance requirements that are specific to booster seats. The requirements include the following tests:

- Tray impact test: This test assesses the tray’s resistance to breaking into small pieces or creating sharp points or sharp edges when dropped from a height of 36 inches. The tray is dropped once on each of four different sides, one of which must include the attaching mechanism.
- Tray engagement test: This test assesses the tray’s ability to remain engaged with the booster seat when it is subjected to a force of 45 lb. in each direction, both horizontally and vertically.
- Static load test: This test assesses whether the booster seat can support its maximum recommended weight, with a safety factor of three, by gradually applying a static load of three times the manufacturer’s maximum recommended weight, or 100 lb. (45 kg), whichever is greater, on the center of the seating surface and maintaining for 1 minute. This test is also performed on the tray; however, the test load for the tray is 50 lb.

- Restraint system test: This test assesses whether the restraint system can secure a child in any of the manufacturer’s recommended-use positions. A force of 45 lb is applied to a CAMI Infant Dummy Mk II that has been restrained in the booster seat. The restraint system and its closing means shall not break, separate, or permit removal of the dummy from the booster seat.
- Seat attachment test: Section 6.5 states that a booster seat must have a means of attaching to an adult chair. The performance test assesses the booster seat’s ability to remain fastened to the adult chair. This ability to remain fastened is determined by applying a force of 45 lb. to a CAMI Infant Dummy Mk II that has been restrained in the booster seat. The booster seat shall not break or separate from the adult chair, nor shall any fastening belts or straps slip more than 1 inch. Additionally, staff has concluded that “grip feet’ and “friction bottoms” are not means of attachment because they do not actually fasten the booster seat to an adult chair. Non-strap or belt fastening devices, such as suction cups, are considered a means of attachment, provided the seat passes the performance requirements.
- Structural integrity (dynamic load) test: This test assesses the durability of the locking/latching devices that prevent folding or adjustment of the booster seat itself. This is determined by dropping a 50 lb. test mass from a height of 3 inches onto the seating surface 500 times, at a rate of 1 drop/4 seconds.
- Maximum booster seat depth and width: This test essentially describes the minimum depth and width of the adult chair on which the booster seat should be attached.

#### **IV. Adequacy of the Current ASTM F2640-18 Requirements**

As stated in the NPR, staff concluded that ASTM F2640-17<sup>e1</sup> adequately addressed the hazard patterns identified in the incident data. Since the NPR, the ASTM subcommittee updated the standard to include performance and testing requirements for a new style of booster seats. In addition, ASTM clarified testing requirements for measuring the maximum adult chair measurements and added a new warning statement to the instructional literature.

The new style of booster seat attaches to the adult chair fundamentally differently than typical booster seats. This new design can fold and is marketed as a travel booster. Typical booster seats are placed on the seat of the chair and usually attached to the seat and back with straps. Thus, the typical booster seat rests on the chair seat, and the adult chair seat bears all of the booster seat’s weight. The new style of booster seat has a frame that hangs over the top of the adult chair seat back, usually with umbrella-style hooks, and it has feet that rest on the seat of the

adult chair. The child's seating area is attached to the frame. Figure 2 shows one of these designs.

Section 6.7 of ASTM F2640-18 addresses this style of booster seat and has two requirements. The first requirement states that the booster seat, when in all manufacturer's-recommended use positions, is not to be tilted forward more than 10 degrees from the horizontal. This requirement was added because a seat that is tilted forward too far may result in a child falling out of the seat. The second requirement states that the backrest support contact must contact the top of the adult chair backrest and extend over and below the top rear edge of the adult chair backrest. This requirement was added to ensure that the booster seat is reasonably secure to the adult chair backrest so that the booster seat does fall off the adult chair.



Figure 2. Booster seat supported by the adult chair backrest.

Section 6.8 of ASTM F2640-18 addresses the maximum booster seat dimensions. The previous version, ASTM F2640-17<sup>e1</sup>, also had a section addressing maximum dimensions, but it did not include requirements for the new, over-the-backrest-style booster seats. The latest version incorporates the previous requirements, but it also includes the requirements specific to this new style of booster seat.

Section 7.10.1.1 of ASTM F2640-18 explains how to measure the maximum booster seat dimension for both traditional and over-the-backrest-style booster seats and includes a diagram of a test fixture to be used for over-the-backrest-style seats along with a diagram of proper installation. This was added to provide clarity and ensure that testing labs are performing the tests consistently.

Section 9 (Instructional Literature) of F2640-18 contains a new requirement, Section 9.5, which states that if the booster seat has no recline feature, the instructions shall contain a statement emphasizing that the product is only for children capable of sitting upright unassisted.

## **V. Other Standards**

Staff found one international voluntary standard pertaining to booster seats, BS EN16120 Child Use and Care Articles – Chair Mounted Seat. Staff compared the performance requirements of ASTM F2640-18 to the performance requirements of BS EN16120, which is intended for a similar product category, although staff identified several differences. Primarily, the scope of ASTM F2640 includes products intended for children up to 5 years of age, while EN 16120 is intended for children’s booster seat products up designed for up to age 36 months or a maximum weight of 15 kg (33 lb.).

Some individual requirements in the BS EN16120 standard are more stringent than ASTM F2640-18. BS EN16120 includes requirements for head entrapment, lateral protection, surface chemicals, cords/ribbons, material shrinkage, packaging film, and monofilament threads. Staff has not found any of these hazard patterns in the incident data. Conversely, some individual requirements in ASTM F2640-18 are more stringent than those found in EN 16120. For example, ASTM F2640 includes requirements for tray performance and toy accessories. Currently, staff is not aware of any technically feasible method to test for the most prevalent and dangerous hazard pattern, which is falls booster seats tipping over. Nevertheless, staff will continue to monitor hazard patterns and recommend future changes, if necessary.

## **VI. Conclusion**

For the reasons described above, staff concludes that the current ASTM F2640-18 standard is the appropriate standard to address the hazard patterns identified in the incident data.

**TAB D: Final Regulatory Flexibility Analysis of the Staff-Recommended Final Rule for Booster Seats and the Accreditation Requirements for Conformity Assessment Bodies for Testing Conformance to the Booster Seats Standard**

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B  
D**



UNITED STATES  
CONSUMER PRODUCT SAFETY COMMISSION  
BETHESDA, MD 20814

**Memorandum**

Date: March 9, 2018

TO : Celestine T. Kish  
Project Manager, Booster Seats  
Division of Human Factors  
Directorate for Engineering Sciences

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

Robert L. Franklin  
Senior Staff Coordinator  
Directorate for Economic Analysis

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

SUBJECT : Final Regulatory Flexibility Analysis of the Staff-Recommended Final Rule for  
Booster Seats and the Accreditation Requirements for Conformity Assessment  
Bodies for Testing Conformance to the Booster Seats Standard<sup>1</sup>

**I. Introduction**

On May 19, 2017, the U.S. Consumer Product Safety Commission (CPSC) published a notice of proposed rulemaking (NPR) in the *Federal Register* (FR) (82 FR 22925). The NPR proposed to incorporate by reference the then-current voluntary ASTM International (ASTM) standard for booster seats (F2640-17<sup>e1</sup>), with no modifications. Since the NPR, ASTM has published a new version of the standard (F2640-18) that includes three changes: (1) new performance and test requirements for booster seats that hang from the back of an adult chair; (2) a clarification of the installation position for measuring the booster seat on an adult chair; and (3) a new warning statement in the instructional literature that addresses booster seats that do not have a reclined position.<sup>2</sup> The new performance and test requirements for hanging booster seats

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<sup>1</sup> Industrial Economics, Inc. (IEc), served as a consultant on this project, performing research and analysis to support Directorate for Economic Analysis (EC) staff.

<sup>2</sup> Memorandum from Maxwell Sanborn, Division of Mechanical Engineering, Directorate for Laboratory Sciences, dated March 9, 2018, Subject: Engineering Assessment of ASTM F2640 Requirements for Booster Seats (CPSIA Section 104).

(1) and the installation clarification (2) were both raised in the public comments, and CPSC staff agrees with all three changes made to the voluntary standard.

Although there were several comments submitted regarding food-service booster seats, no alternatives were presented that would make the draft final rule substantially the same as, or more stringent than, the voluntary standard, as required by the Consumer Product Safety Improvement Act (CPSIA). Therefore, staff continues to recommend that food-service booster seats be included in the standard's scope, without modifications. The revised ASTM standard and its impact on booster seat suppliers is discussed in Sections V and VI, respectively. Staff recommends adopting ASTM F2640-18 as a final mandatory rule, without modifications.

This memorandum evaluates the potential economic impact of the staff-recommended final booster seats standard on small entities, including small businesses, as required by the Regulatory Flexibility Act (RFA).<sup>3</sup> Section 604 of the RFA requires that agencies prepare a final regulatory flexibility analysis (FRFA) when the Commission promulgates a final rule, unless the head of the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. As explained below, staff cannot rule out a significant economic impact for 19 of the 29 (66 percent) known small domestic suppliers of booster seats to the U.S. market. Accordingly, staff has prepared a FRFA.

The FRFA must describe the impact of the rule on small entities and identify any alternatives that may reduce the impact. Specifically, the FRFA must contain:

1. a statement of the need for, and objectives of, the rule;
2. a summary of the significant issues raised by the public comments in response to the initial regulatory flexibility analysis, a statement of the assessment of the agency of such issues, and a statement of any changes made in the proposed rule as a result of such comments;
3. the response of the agency to any comments filed by the Chief Council for Advocacy of the Small Business Administration in response to the proposed rule, and a detailed statement of any change made to the proposed rule in the final rule as a result of the comments;
4. a description of and an estimate of the number of small entities to which the rule will apply or an explanation of why no such estimate is available;
5. a description of the projected reporting, recordkeeping and other compliance requirements of the rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for preparation of the report or record; and
6. a description of the steps the agency has taken to minimize the significant economic impact on small entities consistent with the stated objectives of applicable statutes, including a statement of the factual, policy, and legal reasons for selecting the alternative adopted in the final rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected.

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<sup>3</sup> 5 U.S.C. §§ 601-612.

## II. The Product

A “booster seat,” as identified in ASTM F2640-18, is “a juvenile chair, which is placed on an adult chair to elevate a child to standard dining table height. The booster seat is made for the purpose of containing a child, up to 5 years of age, and normally for the purposes of feeding or eating. A booster seat may be height adjustable and include a reclined position.” Booster seats are constructed from a wide variety of materials, such as wood, plastic, fabric, metal, and/or foam. Most home-use booster seats have removable trays, allowing a table to be used as an alternative eating surface. Staff was unable to find any food-service booster seats intended for use with trays. A few booster seats appear to rely on the occupant’s weight to keep the seat attached to the adult chair, but most offer at least one other attachment method as well, such as straps and suction cups.

Some booster seats are intended to double as floor seats for toddlers. There are also a few high chair/booster seat-combination products. The draft final rule would cover these products when they are in their booster seat configuration. Neither the ASTM standard, nor CPSC’s draft final rule covers car booster seats, which are also sometimes referred to as “booster seats.” Car booster seats are used in vehicles to raise children so that lap and shoulder belts can be used correctly. Car booster seats are regulated by the National Highway Traffic Safety Administration (NHTSA).

The prices for food-service and home-use booster seats are similar, averaging \$44 to \$60. Not surprisingly, combination high chair/booster seat products tend to be more expensive, ranging in price from \$50 to \$250.

As discussed in the initial regulatory flexibility analysis (IRFA), some suppliers produce booster seats intended for use predominately in restaurants. These food-service booster seats are also available to consumers for purchase. Therefore, some food-service booster seats may be found in homes. Furthermore, consumers use food-service booster seats in establishments open to the public, which makes booster seats a consumer product under the Consumer Product Safety Act (CPSA).<sup>4</sup> In the NPR, the Commission requested public comments about variations in safety risks between the home and restaurant use environments and sought alternative requirements that might make booster seats safer in both environments. After reviewing commenters’ responses, staff continues to recommend that food-service booster seats be included in the mandatory rule and subject to the same requirements as home-use booster seats. Staff’s responses to the public comments can be found in the response to comments memorandum.<sup>5</sup>

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<sup>4</sup> 15 U.S.C. §§ 2051-2089.

<sup>5</sup> Memorandum from Jill Hurley, Division of Human Factors, Jill L. Jenkins, Ph.D., Directorate for Economic Analysis, and Maxwell Sanborn, Division of Mechanical Engineering, Directorate for Laboratory Sciences, dated March 9, 2018, Subject: Staff’s Response to Comments on the Proposed Rule for Booster Seats

### III. Objectives of the Draft Final Rule

Section 104 of the CPSIA requires the CPSC to promulgate a mandatory standard for booster seats that is substantially the same as the voluntary standard or more stringent than the voluntary standard if the Commission determines that more stringent requirements would further reduce the risk of injury associated with the product.<sup>6</sup> Based on NEISS injury estimates<sup>7</sup> and data on the number of booster seats in use from CPSC's Durable Nursery Product Exposure Survey (DNPES),<sup>8</sup> staff found that the risk associated with booster seat use in homes is approximately 2.33 emergency department-treated injuries per 10,000 booster seats in use annually [(1,500 average annual injuries<sup>9</sup> ÷ 6.43 million booster seats in use in U.S. households) x 10,000]. Additionally, staff has identified 31 NEISS incidents that occurred in restaurants from 2008 to 2016, although these cannot be extrapolated into reportable national estimate of restaurant injuries.<sup>10</sup> CPSC staff believes that the requirements, test procedures, warning labels, and instructional literature included in the draft final rule address the hazard patterns identified in the incident data.

CPSC staff worked closely with ASTM to improve the requirements, test procedures, warning labels, and instructional literature in ASTM F2640 since this rulemaking was initiated in 2015. Staff now recommends adopting the voluntary ASTM standard for booster seats (F2640-18), without modification.

### IV. IRFA Issues Raised in the Public Comments

The IRFA requested public feedback on three major questions.<sup>11</sup>

1. What actions might firms take to bring their booster seats into compliance with the proposed rule? What costs might be associated with those actions?

CPSC received no public comments in response to these questions in the IRFA.

2. What are the differences between food-service and home-use booster seats and their typical use environments (restaurants and homes)? How might the safety risks vary between the two use environments? Are there any alternative

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<sup>6</sup> Booster seats (referred to as "booster chairs") are specifically mentioned as a durable infant or toddler product in section 104(f)(2) of the CPSIA.

<sup>7</sup> Memorandum from Risana Chowdhury, Division of Hazard Analysis, Directorate for Epidemiology, dated December 8, 2017, Subject: Booster Seats-Related Deaths, Injuries, and Potential Injuries Reported Between October 1, 2016 – October 31, 2017.

<sup>8</sup> Melia, K.L. and J.L. Jenkins (November 2014). Durable Nursery Products Exposure Survey (DNPES): Final Summary Report. U.S. Consumer Product Safety Commission, prepared by Westat.

<sup>9</sup> CPSC staff estimates that 12,000 emergency department-treated injuries occurred over the eight-year period 2008-2016.

<sup>10</sup> While these 31 cases are included in the larger sample which yielded the total estimated injury of 12,000, a national injury estimate for restaurant injuries only does not meet the NEISS publication criteria (Chowdhury 2018).

<sup>11</sup> The complete comments and responses are included in the response to comments memo (Hurley, Jenkins, and Sanborn 2018).

requirements that might address these risk variations and make booster seats safer in both use environments?

CPSC received three comments on food-service booster seats: two from suppliers and one from consumer advocates. Neither of the food-service booster seat suppliers supported including food-service booster seats within the scope of the mandatory booster seat standard, and each cited numerous differences between home-use and food-service booster seats. The consumer advocates said that food-service booster seats ought to be included under the mandatory standard.

One food-service booster seat supplier suggested educational efforts in restaurants to encourage safe food-service booster seat use, while the other recommended that a commercial booster seat standard be developed. One of the food-service suppliers also recommended more stringent warning labels and instructional literature, stating that it was a better way to address food-service booster seat designs that are completely appropriate for restaurant use where children are attended during meals, but may be risky for home use.

Staff agrees that there are differences between food-service booster seats and booster seats intended for home use, including differences cited by the commenters. However, despite interviews with affected parties and a careful review of the comments, staff has not identified any substantive differences between the two products that would prevent food-service booster seats from meeting the mandatory standard while remaining fundamentally the same product. Moreover, the hazard patterns in restaurants are similar to those seen in homes, particularly falls.<sup>12</sup>

According to the requirements of section 104 of the CPSIA, any alternative requirements for food-service booster seats must be based on a determination that such an alternative would result in a booster seat standard that is either substantially the same as the voluntary standard or more stringent. The suggestions presented by commenters do not meet this criteria. Therefore, staff does not recommend any alternative requirements or exclusions for food-service booster seats in the mandatory standard.

3. What is the appropriate effective date for the proposed rule?

The Commission received four comments on CPSC's proposed 12-month effective date for the booster seats mandatory standard. One comment, submitted by three consumer advocate groups, supported a 6-month effective date (which they seem to mistakenly believe was the Commission's proposal). Two commenters, a juvenile product manufacturers' association and a private citizen, support the proposed 12-month effective date, although the private citizen said that they would also support an even longer effective date to reduce the economic

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<sup>12</sup> Chowdhury 2017.

impact on small firms. A fourth commenter, a small manufacturer of food-service booster seats, requested a 2-year effective date to allow additional product-development time. The commenter highlighted the time and cost of tooling and, in a follow-up call with Commission staff (documented in the public record), focused on the need to design and test new plastic molds and the additional time required because their mold maker is located overseas. According to the commenter, if the design process goes perfectly, with no required changes, their booster seats could be redesigned in time to meet the 12-month effective date. The request for a 2-year effective date was based on the design process for plastic molds, the overseas location of their mold supplier, and the potential need to create and test several iterative designs.

Staff recognizes that longer effective dates minimize the impact on affected firms. The FRFA found that a significant economic impact could not be ruled out for 66 percent of the small firms operating in the U.S. market. Staff additionally believes that many of those firms might not be aware of the ASTM voluntary standard or the CPSC booster seats rulemaking, particularly food-service booster seat suppliers, which make up one-third of the small suppliers for which a significant impact could not be ruled out.

The information supplied by the fourth commenter on the time and cost involved in designing and producing new plastic molds is consistent with information supplied by CPSC engineers, as is the longer time frame required for firms conducting some of their redesign overseas. Staff engineers have also indicated that foam products would require new molds as well, which likely require similar cost and time investments.

Although some firms using molds may require iterative designs to meet the standard, the 2-year time estimate for product redesign using molds is applicable to cases where a mold must be modified several times and the work is conducted overseas. Not all firms use molds, not all firms have molds made overseas, and not all firms will encounter sufficient difficulty with their molds to require a full 2 years for their iterative changes. Additionally, not all products will require a complete redesign. Many booster seat suppliers should be able to meet a 12-month effective date based on a combination of factors (*i.e.*, not requiring molds, operating domestically only, and/or few iterations required in the redesign process).

Taking all of this into account, staff recommends an 18-month effective date for all firms to come into compliance with the final rule. An 18-month effective date balances the need for improved consumer safety, with reducing the impact of the final rule on small firms. CPSC engineering staff familiar with hard-mold manufacturing, indicated that, in most cases, 18 months should be adequate.

## V. Requirements of the Draft Final Rule

The staff-recommended final rule would incorporate by reference the current voluntary standard for booster seats (F2640-18) with no modifications. If finalized, it would become a mandatory consumer product safety rule under the CPSA. If it becomes a mandatory standard, firms whose booster seats 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 manufactured after the mandatory standard's effective date would need to be removed from the U.S. market or modified to meet the mandatory standard.

This section lays out the requirements for, and considers the implications on, all firms, large and small. Section VI then continues the discussion, focusing exclusively on the small business impacts.

### A. ASTM F2640-18

The draft final rule would promulgate the requirements of ASTM F2640-18 as a mandatory product safety rule without modifications. The requirements of ASTM F2640-18 are similar to the requirements of ASTM F2640-17<sup>1</sup> on which the proposed rule were based and includes:

- Tray performance—intended to reduce the likelihood of the tray coming loose or breaking. It includes several horizontal and vertical pull tests and a drop test for non-tool removable trays.
- Static load—intended to ensure that the booster seat can support the weight of a child up to three times the weight of the expected occupant. Also ensures that any tray can handle a significant weight as well.
- Child-restraint system—intended to ensure that restraint systems that are required for booster seats graded for children under 36 months old, work effectively.
- Booster seat attachment—requires a means of attaching the booster seat to an adult chair and tests strap attachments for effectiveness.
- Structural integrity—intended to ensure that the booster seat remains intact and functional, and retains its shape over time, by simulating dynamic use.
- Maximum booster seat dimensions—intended to prevent tip-over incidents by making sure that the booster seat is smaller than the adult chair with which it is used. The minimum adult chair dimensions appropriate for use with a particular booster seat are required to be presented on the retail package.

The voluntary standard also includes various general requirements common to most other voluntary children's product standards: (1) torque and tension tests to ensure that components cannot be removed; (2) requirements to prevent entrapment and cuts (minimum and maximum opening size, small parts, hazardous sharp edges or points, smoothness of wood parts, exposed coil springs, and scissoring, shearing, and pinching); (3) marking and labeling requirements, including permanency requirements; (4) requirements for instructional literature; and (5) toy accessory requirements. ASTM F2640-18 includes no reporting or recordkeeping requirements.

Three notable differences exist between the 2017 and 2018 versions of the standard. First, the standard was changed to accommodate a booster-seat design, where the booster seat hooks over the back of the adult chair, rather than uses straps as an attachment method. Second, the maximum booster seat dimensions test has been clarified to ensure that it is performed while the booster seat is in the manufacturer's recommended installation configuration. Third, a new warning statement was added to the instructional literature to address booster seats that do not have a reclined position.

### ***B. Third Party Testing***

Under section 14 of the CPSA, once the new booster seat requirements become effective as a consumer product safety standard, all suppliers will be subject to the third party testing and certification requirements under the CPSA and the Testing and Labeling Pertaining to Product Certification rule (16 CFR part 1107) (1107 rule), which requires that manufacturers and importers certify that their products comply with the applicable children's product safety standards, based on third party testing, and subject their products to third party testing periodically. Third party testing costs are in addition to the costs of modifying the booster seats to meet the standard. For booster seats, the third party testing costs are expected to be \$500 to \$1,000 per sample tested, with the higher cost being more applicable to the smallest suppliers.<sup>13</sup> As allowed by the component part testing rule (16 CFR 1109), importers may rely upon third party tests obtained by their suppliers, which could reduce the impact on importers. The incremental costs would also be lower for suppliers of compliant booster seats if they are already obtaining third party tests to ensure conformance with the voluntary standard.

## **VI. The Market for Booster Seats and the Impact on Small Businesses**

Staff identified 44 domestic firms supplying booster seats to the U.S. market, as shown in Table 1. The majority of firms market their booster seats exclusively to consumers (34 domestic firms). Ten domestic firms sell booster seats exclusively to restaurant or restaurant supply stores (usually through regional distributors or an internal portal). Of the 10 domestic firms selling food-service booster seats, none are compliant with the ASTM voluntary standard. Of the 44 known domestic suppliers, 29 are domestic manufacturers (10 large and 19 small), 14 are domestic importers (5 large and 9 small), and one is a domestic firm whose supply source could not be determined.<sup>14</sup>

Additionally, staff identified two foreign manufacturers selling directly to the United States. Other foreign booster seats are entering the U.S. market in a variety of ways as well. Sellers operating through websites that act as brokers between buyers and sellers are the source of a large number of booster seat products, particularly from Asian countries. In such cases, staff

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<sup>13</sup> These cost estimates are for testing compliance with the physical or mechanical requirements in the standard only. Manufacturers and importers of booster seats are already subject to third party testing requirements with respect to lead content.

<sup>14</sup> Staff made determinations using information from Dun & Bradstreet and ReferenceUSAGov, as well as firm websites.

often cannot determine whether the online seller is located in the United States or overseas, and whether the seller is a manufacturer, retailer, or importer, making it difficult for staff to categorize these companies for analysis. However, none of the online sellers operating through broker websites specialize solely in booster seats, and all sell a wide variety of products beyond those for children. Therefore, staff expects the impact of a booster seats mandatory standard on these firms to be small.

European booster seats are also entering the U.S. market through foreign retailers willing to ship directly to the United States. For example, staff found an online company that acts as a broker between buyers and sellers. Products purchased through this website are also shipped by the individual sellers. In these instances, the seller is foreign, and as described in the next paragraph, foreign suppliers are not considered in the regulatory flexibility analysis.

Under U.S. Small Business Administration (SBA) guidelines, a manufacturer of booster seats is considered small if it has 500 or fewer employees; and importers are considered small if they have 100 or fewer employees. Staff limited our analysis to domestic firms because SBA guidelines and definitions pertain to U.S.-based entities. Based on these guidelines, 29 of the 44 domestic firms are small—19 domestic manufacturers, nine domestic importers, and one domestic firm whose supply source could not be categorized. Additional small domestic booster seat suppliers may be operating in the U.S. market, possibly including some of the firms operating Amazon storefronts. As discussed above, for Amazon suppliers that staff could not readily identified as domestic, staff expects impacts to be small; therefore, they are not included in the analysis.

**Table 1. Domestic Firms Identified in the U.S. Booster Seats Market**

CATEGORY	NUMBER OF FIRMS SUPPLYING BOOSTER SEATS (ALL USES)	NUMBER OF FIRMS SUPPLYING HOME USE BOOSTER SEATS	NUMBER OF FIRMS SUPPLYING FOOD-SERVICE BOOSTER SEATS
<b>Total Domestic Firms</b>	<b>44</b>	<b>34</b>	<b>10</b>
<b>Small</b>	<b>29</b>	<b>22</b>	<b>7</b>
<b>Manufacturers</b>	<b>19</b>	<b>14</b>	<b>5</b>
Compliant with ASTM Voluntary Standard	8	8	0
Not Compliant with ASTM Voluntary Standard	11	6	5
<b>Importers</b>	<b>9</b>	<b>7</b>	<b>2</b>
Compliant with ASTM Voluntary Standard	2	2	0
Not Compliant with ASTM Voluntary Standard	7	5	2
<b>Unknown</b>	<b>1</b>	<b>1</b>	<b>0</b>
Compliant with ASTM Voluntary Standard	0	0	0
Not Compliant with ASTM Voluntary Standard	1	1	0
<b>Large</b>	<b>15</b>	<b>12</b>	<b>3</b>
<b>Manufacturers</b>	<b>10</b>	<b>7</b>	<b>3</b>
<b>Importers</b>	<b>5</b>	<b>5</b>	<b>0</b>

Highlighted categories are the focus of this analysis.

**A. Small Manufacturers**

**1. Small Manufacturers with Compliant Booster Seats**

Of the 19 small manufacturers, eight produce booster seats that comply with the ASTM voluntary standard currently in effect for testing purposes (ASTM F2640-17<sup>e1</sup>).<sup>15, 16</sup> ASTM

<sup>15</sup> The Juvenile Products Manufacturers Association (JPMA) has certification programs for several durable infant products with voluntary ASTM standards. Typically, JPMA’s certification program has a 6-month delay between the publication of a new ASTM voluntary standard and its adoption for compliance testing under their program. Published in March of 2017, ASTM F2640-17<sup>e1</sup> went into effect for JPMA testing purposes in September 2017. ASTM F2640-18 will be in effect for JPMA testing before the mandatory booster seat standard going into effect. Therefore, compliant firms are expected to remain compliant.

F2640-18, the version of the voluntary standard upon which the staff-recommended mandatory standard is based, will be in effect for JPMA certification testing purposes in November 2018. The new version of the standard (ASTM F2640-18) addresses booster seats that hang from the back of the adult chair, and ensures that the maximum booster seat dimensions test is performed while in the manufacturer's recommended-installation configuration. In general, staff expects that small manufacturers whose booster seats already comply with the voluntary standard currently in effect for testing purposes will remain compliant with the voluntary standard as it evolves, because they follow, and in five cases actively participate in, the standard development process. Therefore, compliance with the voluntary standard is part of an established business practice. As such, the staff-recommended final rule should not have a significant impact on any of the eight small manufacturers with booster seats expected to meet the requirements of the voluntary standard. Additionally, as these firms are already testing to the ASTM standard, any third party testing costs are expected to be minimal.

## **2. Small Manufacturers with Noncompliant Booster Seats**

Eleven small manufacturers produce booster seats that do not comply with the voluntary standard, five of which produce food-service booster seats, and six produce booster seats for home use. The extent and cost of the changes required for the booster seats of these 11 firms to comply with the staff-recommended final rule cannot be determined. Six of these 11 firms supply booster seats that use attachment methods other than belts or straps, such as suction or friction. Staff does not know whether these firms' booster seats would pass the attachment test without modifications. Four of these firms supply plastic or foam booster seats, which may be more expensive to modify than wooden booster seats because they require modifications to the hard tools.<sup>17</sup> These hard tools are usually modified by an outside firm, which means that production would cease; and unless the firm maintains an alternating production schedule, it could result in significant downtime for the firm's production process.

Staff contacted several representatives who said that complete redesign costs for a booster seat model could run around \$500,000. Although it is unlikely that the cost of addressing the attachment method would be that high (in many cases, drilling attachment points for a belt or buckle may be sufficient), any change that involves redesign can be expensive. Generally, staff considers impacts that exceed 1 percent of a firm's revenue to be potentially significant. For all 11 small manufacturing firms producing booster seats that do not meet the voluntary standard, the cost of redesigning the products could exceed this threshold. However, based on staff's review of the revenue data available for these firms, the impact is unlikely to be significant for two of the firms, unless a redesign costing more than \$200,000 is required. The impact is highly likely to be significant for two of the firms, even with relatively minor changes. Staff cannot estimate the likely impact on three firms, given a lack of revenue data. Overall, staff cannot rule

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<sup>16</sup> In this case, four of the firms with compliant booster seats are part of JPMA's certification program, while the other four firms claim compliance based on testing performed to the ASTM standard performed outside of the JPMA certification program.

<sup>17</sup> During the production process, a hard tool, which is a mold of the desired booster seat component shape, is injected with plastic or another material using a molding machine.

out a significant economic impact on any of the 11 small manufacturers producing noncompliant booster seats.

For the 11 small manufacturers that are not currently testing their products to verify compliance with the ASTM standard, the impact of third party testing could result in significant costs for six firms. Although CPSC staff does not currently know how many samples will be needed to meet the “high degree of assurance” criterion required in the 1107 rule, testing costs could exceed 1 percent of gross revenue for three of these firms, if five samples are needed to be tested per model (assuming high-end testing costs of \$1,000 per model sample). Revenue information was not available for the other three firms, but those firms’ revenue appears to be very small. Accordingly, CPSC staff cannot rule out the possibility that those firms might also be significantly affected by third party testing costs, in addition to the costs of compliance.

## ***B. Small Importers***

### **1. Small Importers with Compliant Booster Seats**

Staff identified two booster seat importers currently in compliance with the voluntary standard. As with compliant manufacturers, staff expects that small importers whose booster seats already comply with the voluntary standard currently in effect for testing purposes will remain compliant with the voluntary standard as it evolves, because these importers follow the standard development process. Therefore, these firms are likely to be in compliance, based on their history. As such, the staff-recommended final rule should not have a significant impact on either of the small importers with compliant booster seats.

Any third party testing costs for importers of compliant booster seats would be limited to the incremental costs associated with third party testing over their current testing regime. For one of these small importers, revenue is not available; however, significant impacts due to testing costs are considered unlikely, given that the firm is already undertaking testing to the ASTM voluntary standard. Given the revenues of the other small importer currently in compliance, staff does not expect significant impacts to result from incremental testing costs.

### **2. Small Importers with Noncompliant Booster Seats**

Staff does not have sufficient information to rule out a significant impact for any of the seven importers with noncompliant booster seats under the staff-recommended final rule. The economic impact on importers depends upon the extent of the changes required to come into compliance and the response of their supplying firms, which staff cannot generally determine for noncompliant importers.

The increase in production or redesign costs as a result of changes made to meet the mandatory standard is more likely to be fully passed on to importers without direct ties to their suppliers (at least three of the seven small importers of noncompliant booster seats). These firms may opt to switch to alternative suppliers (or, in some cases, alternative products), rather than bear the cost of complying with the standard. Alternatively, firms may decide to drop booster

seats if they already offer diverse product lines, which is the case for all three of the small importers of noncompliant booster seats without direct ties to their supplier.

Finding an alternative supply source would not be a viable alternative for importers with direct ties to their suppliers (four of the seven small importers of noncompliant booster seats). However, the foreign suppliers to these firms may have an incentive to work with their U.S. subsidiaries/distributors to maintain an American market presence, potentially absorbing some of the costs associated with compliance. If they are unable to come to a practical agreement with their supplier, importers with direct ties to their supplier may be able to discontinue the sale of booster seats altogether. This may be a viable alternative for all four of the small importers of noncompliant booster seats with direct ties to their suppliers, as booster seats represent a small portion of each firm's product line.

Third party certification arising from the staff-recommended final rule could result in significant costs for three firms with booster seats not believed to comply with the ASTM standard. There were no revenue data available for these three small importers; thus, CPSC staff cannot rule out the possibility that third party testing costs could be significant. However, given that each of these three firms only supplies one booster seat model believed to be noncompliant, third party testing costs are unlikely to be greater than 1 percent of the firms' gross revenues.

### ***C. Small Unknown Firm Type with Noncompliant Booster Seats***

For one firm identified as supplying noncompliant booster seats in the U.S. market, staff is unable to determine whether the firm is a manufacturer or an importer. For this firm, staff does not know the extent of the changes required to come into compliance with the draft final rule. The firm's revenues are also unavailable. Thus, staff has insufficient information to rule out the possibility that modifications required to come into compliance with the rule could result in a significant impact (*i.e.*, greater than 1 percent of revenues) on this small noncompliant firm.

### ***D. Summary of Impacts***

CPSC staff is aware of 29 small firms, including 19 domestic manufacturers, nine domestic importers, and one firm whose type is unknown, currently marketing booster seats in the United States. Staff concludes that it is unlikely that there would be a significant economic impact on the eight small manufacturers and two small importers of compliant booster seats. However, CPSC staff could not rule out a significant economic impact for any of the 19 suppliers of noncompliant booster seats (11 manufacturers, seven importers, and one unknown type).

## **VII. Efforts to Minimize the Impact on Small Entities**

The NPR proposed an effective date 12 months after publication of the final rule in the *Federal Register*. Staff received two comments requesting a later effective date, including one from a food-service booster seat manufacturer who requested a 2-year effective date, which they stated would be needed to develop and build the new tooling that would be required to meet the

mandatory standard. As discussed in Section IV and the response-to-comments memorandum,<sup>18</sup> staff agrees that a later effective date would reduce the economic impact on firms. Firms would have more time to adjust their designs and tooling, and thus, be less likely to experience a lapse in production/importation, which could result if they were unable to produce or locate suppliers within the required timeframe. Additionally, firms could spread these costs over a longer time period, thereby reducing their annual costs, as well as the present value of their total costs. To help reduce the impact on all small firms, and more specifically, reduce the potential burden on firms using molds that may require iterative designs to meet the standard, particularly where some work is conducted overseas, staff now recommends an 18-month effective date.

### **VIII. 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 notice of requirements (NOR) pertaining to third party conformity testing. NORs have been codified for existing rules at 16 CFR part 1112 (1112 rule). Consequently, staff recommends that the Commission amend the 1112 rule to establish the NOR for those testing laboratories that want to test for compliance with the booster seats final rule. This section assesses the impact of the amendment on small laboratories.

The Commission certified in the NPR that the proposed NOR would not have a significant 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;
- Only firms that anticipated receiving sufficient revenue from the mandated testing to justify accepting the requirements would provide testing services; and
- Most of these laboratories will already be accredited to test for conformance to other juvenile product standards, and the only costs to them would be the cost of adding the children's booster seats standard to their scope of accreditation.

No substantive changes in these facts have occurred since the NPR was published, and CPSC did not receive any comments regarding the NOR. Therefore, staff does not recommend altering the Commission's certification of the NOR's impact on small test laboratories.

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<sup>18</sup> (Hurley, Jenkins, and Sanborn 2018).