



Ballot Vote Sheet

TO: The Commission
Alberta E. Mills, Secretary

DATE: November 2, 2022

THROUGH: Austin C. Schlick, General Counsel
Jason K. Levine, Executive Director

FROM: Daniel R. Vice, Assistant General Counsel, Regulatory Affairs
Barbara E. Little, Attorney, Regulatory Affairs

SUBJECT: ASTM's Notice of a Revised Voluntary Standard for Children's Chairs and Stools

BALLOT VOTE DUE: Tuesday, November 8, 2022

Section 104(b)(4)(B) of the Consumer Product Safety Improvement Act of 2008 (CPSIA) sets forth a procedure for updating mandatory standards that incorporate by reference, in whole or in part, a voluntary standard for a durable infant or toddler product. 15 U.S.C. § 2056a(b)(4)(B). The Safety Standard for Children's Folding Chairs and Folding Stools, 16 CFR part 1232, incorporates by reference ASTM F2613-21, *Standard Consumer Safety Specification for Children's Chairs and Stools*, with no modifications. 86 *Fed. Reg.* 26,654 (May 17, 2021).

On August 22, 2022, ASTM notified the Commission that it had approved and published a revised version of the voluntary standard for children's chairs and stools, ASTM F2613-22. Pursuant to the section 104 update procedure, CPSC staff is forwarding to the Commission a briefing package assessing whether ASTM F2613-22 improves the safety of children's folding chairs and folding stools subject to 16 CFR part 1232. Based on CPSC staff's assessment of the revised voluntary standard and public comments on the revised standard, staff recommends that the Commission determine that ASTM F2613-22 does not improve the safety of children's folding chairs and folding stools, as compared to the Commission's mandatory rule, and notify ASTM that CPSC is retaining the existing consumer product safety standard for children's folding chairs and folding stools.



Ballot Vote Sheet

Please indicate your vote on the following options:

- I. Determine that ASTM F2613-22 does not improve the safety of children’s folding chairs and folding stools and direct CPSC staff to notify ASTM of this determination and that the Commission is retaining the existing standard for children’s folding chairs and folding stools in 16 CFR part 1232.

(Signature)

(Date)

- II. Accept ASTM F2613-22 as the new mandatory standard for children’s folding chairs and folding stools and direct the Office of the General Counsel to prepare for the Commission’s consideration a draft *Federal Register* notice to revise the version of the standard incorporated by reference in 16 CFR part 1232.

(Signature)

(Date)

- III. Take other action specified below.

(Signature)

(Date)

Attachment: October 2022 Staff Briefing Package: ASTM’s Notice of a Revised Voluntary Standard for Children’s Chairs and Stools

This document has been electronically approved and signed.

Date: October 26, 2022

TO: The Commission
Alberta E. Mills, Secretary

THROUGH : Austin C. Schlick, General Counsel
Jason K. Levine, Executive Director
DeWane Ray, Deputy Executive Director for Safety Operations

FROM: Duane E. Boniface, Assistant Executive Director
Office of Hazard Identification and Reduction

Kevin K. Lee, Mechanical Engineer
Division of Mechanical and Combustion Engineering
Directorate for Engineering Sciences

SUBJECT: ASTM's Notice of a Revised Voluntary Standard for Children's Folding Chairs and Children's Folding Stools (16 CFR part 1232)

Introduction/Background

In response to incidents and recalls of children's folding chairs in 2004 and 2005, CPSC staff requested that ASTM develop voluntary requirements to address the hazards associated with children's folding chairs that folded or collapsed unexpectedly during setup, use, takedown, and handling. CPSC staff participated in ASTM subcommittee meetings and testing programs to develop draft requirements for the voluntary standard. ASTM F2613 was first published in 2007. Staff continued to work with ASTM on subsequent revisions and a proposed rule in 2015.

On December 15, 2017, the Commission published a final rule, issuing a mandatory standard for children's folding chairs and children's folding stools that incorporated by reference ASTM F2613-17a, *Standard Consumer Specification for Children's Chairs and Stools* (82 FR 59505). The final rule is codified in 16 CFR part 1232. The standard addresses lacerations, fractures, pinches, and amputations of children's fingers in the folding mechanism of children's folding chairs and stools.

ASTM has revised the voluntary standard twice, and the Commission has issued direct final rules to update the mandatory standard:

- On April 1, 2020, the Commission published a direct final rule to update part 1232 to reflect incorporation by reference of ASTM F2613-19, with no modifications (85 FR 18111).
- On May 17, 2021, the Commission published a direct final rule to update part 1232 to reflect incorporation by reference of ASTM F2613-21, with no modifications (86 FR 26654).

On July 1, 2022, ASTM approved another revision of ASTM F2613. ASTM published this revised standard, ASTM F2613-22, in August 2022, and notified CPSC of the revision on

August 22, 2022.¹ On September 2, 2022, the Commission published in the *Federal Register* a Notice of Availability, requesting comment on whether the revision improves the safety of children’s folding chairs and stools (87 FR 54202). The public comment period closed on September 16, 2022, and CPSC received two comments—one supporting the revision and one expressing concern that the revision reduces safety—which are discussed below.

The revised standard will take effect as the new mandatory standard on February 18, 2023, unless the Commission specifies a later date in the *Federal Register* or notifies ASTM by November 20, 2022, that it has determined the revision does not improve the safety of children’s folding chairs and children’s folding stools. See 15 U.S.C. 2056a(b)(4)(B).

This memorandum outlines the differences between ASTM F2613-21 and F2613-22 and assesses the impact on safety. Based on staff’s evaluation of the revised voluntary standard, staff recommends that the Commission not allow ASTM F2613-22 to be the new consumer product safety standard for children’s folding chairs and children’s folding stools, because it reduces safety.

Discussion

The CPSC’s current mandatory Safety Standard for Children’s Folding Chairs and Children’s Folding Stools in 16 CFR part 1232 incorporates by reference ASTM F2613-21, with no modifications.

Substantive changes in ASTM F2613-22

The revision to ASTM F2613-21 consists of two substantive changes:

1. Adds “children’s step stools” to the list of products outside the scope of the standard in “Section 1. *Scope*.”
2. Adds a requirement and test method for head entrapment (in sections 5.14 Head Entrapment and 6.9 Head Entrapment Test) that is intended to prevent a child’s head from entering hazardous openings bounded by cords, straps, and other elasticized components that are too small for the child to remove their head. The revised standard includes additional definitions and figures specific to the new requirements “Section 3.1 Definitions,” “Figure 9. Small Head Probe,” and “Figure 10. Large Head Probe.”

Below is a detailed discussion of these changes made to ASTM F2613-21.

1. Exclusion of children’s step stools from the scope of the standard.

ASTM F2613 adds “children’s step stools” to the list of products to which the standard does not apply, as follows:

This standard does not apply to seats with restraint systems, infant or infant/toddler rockers, children’s step stools, or children’s potty chairs.

¹ Voluntary standards organizations must notify CPSC of revisions to voluntary standards that have been adopted as part of a consumer product safety standard pursuant to 15 U.S.C. 2056a(b)(4)(B).

Although ASTM F2613 does not define “children’s step stools,” it does define “children’s stool” as “a children’s chair without back or armrests.”

Folding “children’s step stools” have the same scissoring, shearing, and pinching hazards as a children’s folding stool—a hazard that ASTM F2613 and CPSC regulations are designed to address. Figure 1 shows two examples of folding “children’s step stools” that are functionally equivalent to children’s folding stools or folding chairs. Indeed, as shown below, some folding children’s step stools are specifically marketed as products for children to sit on and use as chairs, or include backs that make the product look like a chair and that function as support for a sitting child.



Figure 1. Examples of folding children’s step stools that are functionally equivalent to children’s folding stool.

ASTM F2613-21 and ASTM F2613-22 define a “children’s chair” as “seating furniture with a rigid frame that is intended to be used as a support for the body, limbs, or feet of a child when sitting or resting in an upright or reclining position.” As noted, the voluntary standard defines “children’s folding chairs” and “children’s folding stools” as intended for “sitting or resting in an upright or reclining position.” Given the likely use of children’s folding step stools as a seating surface, including current examples of children’s folding step stools that meet this definition in design and marketing, staff assesses that some children’s folding step stools are folding stools, and thus, are currently within the scope of the mandatory standard.

Therefore, staff concludes that exempting children’s step stools from the scope of the standard is a reduction in safety because folding products that are functionally children’s folding stools would be excluded from needing to meet performance requirements that address scissoring, shearing, pinching hazards associated with children’s folding stool products.

2. Addition of requirements to address potential head entrapment in elasticized components of children’s chairs and stools.

The revised standard adds a new head entrapment requirement in section 5.14. The requirement specifies, “Any completely bounded opening within the occupant space that includes a cord(s), strap(s), or other elasticized component(s) as any part(s) of its boundaries shall not allow the complete passage of the small head probe unless it allows the complete passage of the large head probe, when tested in accordance with 6.9.”

The new head entrapment test method in section 6.9 specifies:

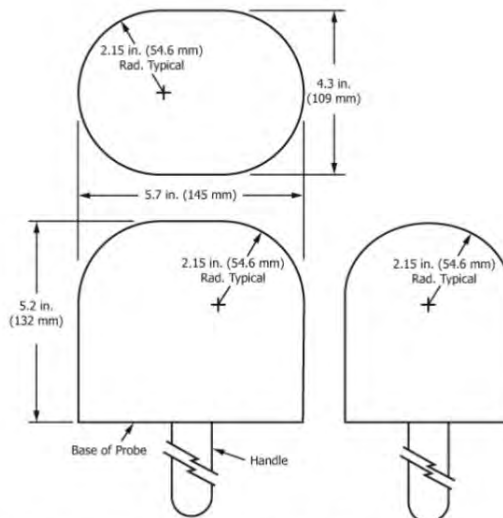
6.9.1 For all applicable openings, rotate the small head probe (Fig. 9) to the orientation most likely to fail and gradually apply a force of 25 lbf (111 N). Apply the force perpendicular to the base of the probe within a period of 5 s and maintain it for an additional 10 s.

6.9.2 If the small head probe (Fig. 9) can pass completely through the opening in any orientation, rotate the chair such that the plane of the opening is parallel to the ground and determine if the large head probe (Fig. 10) can pass completely through the opening under its own weight.

In section 3.1 Definition, the revised standard adds definitions for the components and area that are to be evaluated for the head entrapment requirement and head entrapment test method:

- 3.1.5 *cord*, *n*-length of slender flexible material including monofilaments, rope, woven and twisted cord, plastic and textile tapes, ribbon, and those material commonly called string.
- 3.1.7 *Elasticized component*, *n*- Length of slender flexible material that returns to its original length or shape after being stretched.
 - 3.1.7.1 *Discussion*- Cords and strap may be elasticized components.
- 3.1.12 *occupant space*, *n*- product space that is bordered by the seat back, seat bottom, side containment, arm rest, leg rest, and underside of the canopy (if present).
- 3.1.15 *strap*, *n*- piece of flexible material of which the width is significantly greater than the thickness.

The revised standard includes figures specific to the new requirements as “Figure 9” and “Figure 10,” shown below:



NOTE 1—Dimensions are based on a 5th percentile 6-month-old child. Probe may be modified to facilitate testing to allow for pulling of the probe.

FIG. 9 Small Head Probe



8.0-in. (203-mm) hollow sphere
Material: ABS
Weight: 5 lb (2.3 kg)

FIG. 10 Large Head Probe

The head entrapment test method uses the same framework for determining whether an opening is hazardous that is used in other voluntary standards for children's products, as well as in the CPSC Playground Handbook.² That framework is: If an opening allows passage of a small child's head, the opening must also be large enough to allow free passage of the child's chest to avoid entrapment.

ESMC staff tested an exemplar children's folding chair (with a seatback and seat bottom composed of elastic cords) using the head entrapment tests specified in ASTM F2613-22a and the chair failed the performance requirements specified in section 5.4, see Figure 2. Staff used a 50th percentile 6-month CAMI dummy to confirm that a child's head could fit between the elastic components of the chair and become entrapped, see Figure 3. Based on staff's testing, ESMC staff concludes that adding requirements to address head entrapment likely improves the safety for children's chairs that have elastic straps or cords that could pose a potential entrapment hazard.



Figure 2. Exemplar children's folding chair (constructed with an elastic strap seat back) that fails the head entrapment test because the small head probe passes through the opening and the large head probe does not.

² Available at CPSC's website: <https://www.cpsc.gov/s3fs-public/325.pdf>.



Figure 3. Demonstration of a 6-month CAMI's head entrapped between the elastic components of the seatback.

Editorial changes in ASTM F2613-22

The revision to ASTM F2613-21 includes the following editorial changes:

- The revised standard changes the compound adjective “double action” release system to “double-action” release system in section 3.1.6, section 5.8.1.3, Rationale X1.2
- The revised standard changes the compound adjective “left aligned” to “left-aligned” in section 7.4.6.1 (and in its NOTE: 6), and FIG X1.1.

Staff concludes these changes have no effect on safety.

Public Comments

The Commission requested public comment on the effect the revised voluntary standard will have on the safety of consumer products covered by the standard. CPSC received two public comments.

One comment (JPMA) supports incorporating ASTM F2613-22 by reference into 16 CFR part 1232 because the revised standard “contains a new set of requirements and a testing method related to head entrapment.”

One comment (Kids In Danger) supports the strengthening of the voluntary standard to address head entrapment in chairs with occupant seating areas that are formed with elastic strapping. However, the commenter is concerned that the removal of children’s step stools from the voluntary standard will exclude products that are identical to children’s stools. The commenter recommends that CPSC not accept the revision to the voluntary standard “unless step stools are not exempted or until there is clarification about what is included in the standard and what is left out.”

Staff’s Assessment of the Revised Voluntary Standard

Under CPSIA section 104(b)(4)(B), unless the Commission determines that ASTM’s revision to

a voluntary standard that is referenced in a mandatory standard “*does not improve the safety of the consumer product covered by the standard,*” the revised voluntary standard becomes the new mandatory standard. The substantive changes made in ASTM F2613-22 introduce a more stringent requirement for head entrapment. However, the substantive changes made in ASTM F2613-22 also exempt children’s step stools from the scope of the standard, which staff finds is a reduction in safety. Folding products that are functionally children’s folding stools may be excluded from meeting performance requirements that address the primary hazards of folding chairs and folding stools, which are the scissoring, shearing, pinching hazards associated with children’s folding chair and folding stool products. Therefore, staff concludes that these changes reduce the safety of children’s folding chairs and children’s folding stools.

Recommendation

Staff recommends that the Commission notify ASTM that it has determined the revision ASTM F2163-22 does not improve the safety of children’s folding chairs and folding stools; therefore, the mandatory standard will not be updated to reference the latest revision of ASTM F2163. Staff intends to work with ASTM to revise the standard to remove the exemption for children’s folding step stools.