



Standard Consumer Safety Performance Specification for Infant Bedding and Related Accessories¹

This standard is issued under the fixed designation F1917; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

This consumer safety performance specification addresses incidents associated with infant bedding and related accessories that were reported to the U.S. Consumer Product Safety Commission (CPSC). These incident reports involved entanglement or strangulation on decorative ribbons, bumper guard ties, wall hangings, fitted sheets, and threads resulting from unraveled seams. It also addresses potential suffocation on decorative pillows placed in cribs.

In response to the incident data developed by the CPSC, this consumer safety performance specification attempts to minimize the problems listed above. This effort is accomplished through the establishment of performance requirements and warning labels for infant bedding and accessories. This specification cannot prevent incidents that occur as the result of unforeseeable abuse and misuse.

NOTE—This consumer safety performance specification is not intended to address incidents and injuries resulting from the interaction of other persons with children using these products or the incidents resulting from unforeseeable abuse and misuse.

This consumer safety performance specification has been written based on current state-of-the-art softgoods technology. This consumer safety performance specification will be updated whenever substantive information becomes available.

1. Scope

1.1 This consumer safety performance specification establishes safety performance requirements, test methods, and requirements for labeling to minimize the identified hazards to children presented by infant bedding and related accessories as identified in the introduction.

1.2 No infant bedding or related accessory produced after the approval date of the consumer safety performance specification shall indicate, either by label or other means, compliance with this specification unless it conforms to all applicable requirements contained herein.

1.3 The inspection and test procedures contained herein shall be used to determine the conformance of products to the requirements of this consumer safety performance specification. The relevant tests for an infant bedding product or related accessory can be done in any order, except where specified. Each test may be conducted on a different sample, unless otherwise specified. The tests can be considered as qualification tests and not necessarily as quality control tests. These tests shall also be conducted when there is a design or material

change in the infant bedding or related accessory item. Each producer or distributor who represents any products as conforming to this specification may utilize statistically based sampling plans that are appropriate and shall keep such essential records as are necessary to document that all of the requirements of this specification have been met. Any test methods that are made mandatory by the CPSC, or any applicable governmental agencies, shall supersede any applicable test methods in this specification.

1.4 These tests are intended to simulate normal use conditions, so as to ensure that hazards are not generated through normal use. The tests shall be carried out in a normal use environment. For example, bumper guards should be secured in a crib as a customer would in actual end use situations. Ties should be tied and untied. While no specific requirements are defined here, the evaluator shall perform enough testing to simulate normal use during the estimated lifetime of the product. The infant bedding product or related accessory shall be inspected after such tests and shall be evaluated according to the relevant requirements listed within this specification.

1.5 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.

1.6 The following safety hazards caveat pertains only to the test method portion, Section 8, of this consumer safety performance specification: *This standard does not purport to address*

¹ This consumer safety performance specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.19 on Infant Bedding.

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the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 ANSI Standard:²

ANSI Z535.4 Product Safety Signs and Labels

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 attachment means, *n*—flexible ribbons, strings, and ties attached to a bumper for the purpose of attaching to a crib.
 3.1.2 decorative components, *n*—ornamental components attached to a crib bumper for the exclusive use of being a decorative component.
 3.1.2.1 Discussion—Decorative components include, but are not limited to ribbons, strings, buttons, appliques, embellishments, etc.
 3.1.3 fabric, *n*—any woven, knit, flexible material that is intended to be sewn together as an assembly.
 3.1.4 infant bedding and related accessories, *n*—includes the following items intended for use in a nursery: fitted sheets, blankets, covers and drapes for canopies, pillows, mattress covers, diaper stackers, fabric wall hangings, bumper guards, headboard bumper guards, and comforters.
 3.1.5 supported vinyl, *n*—calandered sheet vinyl that has been laminated or bonded to a supporting material such as nylon scrim, a polyester non-woven, or other fabric material on the back or has a supporting material integrated inside the vinyl sheet such that the material is not 100% vinyl.
 3.1.6 unsupported vinyl, *n*—a flat sheet material calandered from 100% vinyl plastic.

4. Calibration and Standardization

4.1 The relevant tests for an infant bedding product or related accessory can be done in any order, except where specified.
 4.2 Each test may be conducted on a different sample, unless otherwise specified.
 4.3 If during the course of conducting tests in accordance with this specification, a test sample sustains any permanent deformation or damage, an additional test sample shall be used for the remainder of the tests unless otherwise specified.

5. General Requirements

5.1 Attachment means on bumper guards and headboard bumper guards shall not exceed 9.0 in. (230 mm) when measured in accordance with 7.1.
 5.2 Decorative components as defined in 3.1.2 shall not exceed 7 in. (180 mm) when measured in accordance with 7.1. If any decorative components can tangle to form a loop, then the perimeter of the loop shall not exceed 14 in. (360 mm) when measured in accordance with 7.1.

² Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

5.3 Threads—Use of monofilament thread in the construction of infant bedding and related accessories is prohibited.
 5.4 Bumper guards shall be capable of being secured at or near all corners and at the midpoints of the long sides of the crib. Bumper guards intended for circular cribs shall be capable of being secured at intervals not exceeding 26 in. (660 mm).

6. Performance Requirements

6.1 Unsupported VinyIs:

6.1.1 Unsupported vinyl that is accessible to the infant when the product is installed in the manufacturer's recommended use position shall be 0.012-in. (0.30-mm) nominal thickness or thicker gauge. No minimum thickness is specified for supported vinyl. Any infant bedding or related accessory item composed entirely or in part of unsupported vinyl shall be tested in accordance with 7.2.

6.1.2 Unsupported vinyl materials that are not accessible to the infant when the product is installed in the manufacturer's recommended use position, such as unsupported vinyl used as a liquid barrier in a mattress cover and sandwiched between two layers of fabric are not required to be tested accordance with 7.2.

6.2 Maximum Bumper Thickness—For crib bumpers manufactured of fabric and filled with a natural or manmade fibrous material, each bumper section shall slide through the bumper thickness test fixture (see Fig. 1) over its entire length when tested in accordance with 7.3. The bumper shall be tested in its pre-washed state and also after three wash/dry cycles performed according to the manufacturer's care instructions.
 6.3 Bumper Pad Tie Strength—Following the testing specified in 7.4, a bumper pad tie shall not fully detach from the bumper pad. Partial detachment or tearing is allowed.

7. Test Methods

7.1 Attachment Means and Decorative Components—Measure each attachment means or decorative component when it is extended to its maximum length under a force of 5 lbf (22 N).
 7.2 Vinyl Thickness Measurement—Using a paperrometer, measure the thickness at four locations, one at each end and two in a location near the middle.

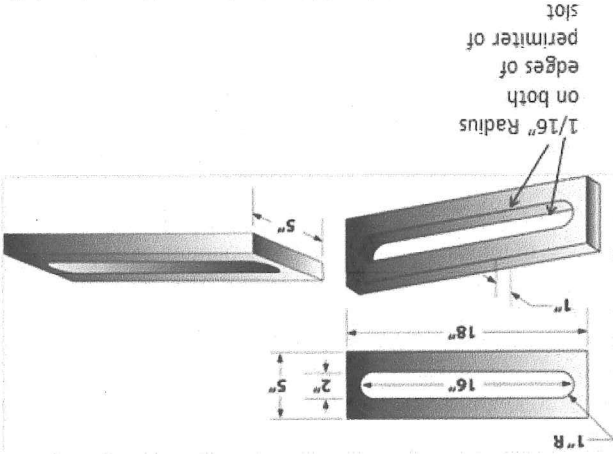


FIG. 1 Bumper Thickness Test Fixture

Note: Test fixture shall be fabricated from aluminum and have a smooth finish

7.3 Bumper Thickness Test—Align the bumper thickness test fixture so that the surface of the fixture with the opening is horizontal. Insert a bumper end into the opening so that the bumper end protrudes just beyond the lower surface of the test fixture and attach a 5-lb static weight to the midpoint of the protruding bumper end. Keeping the bumper positioned vertically, allow the weight to slowly draw the bumper through the opening.

NOTE 1—If bumper ties or other localized means provided to secure the bumper to the crib interfere with the bumper sliding through the bumper thickness test fixture, ease the ties or fasteners through the fixture and then continue the test.

7.4 Bumper Pad Tie Attachment Strength—Apply a tensile force of 20 lb on the bumper pad tie(s) in a perpendicular direction away from the attachment point of the ties to the bumper pad. The force shall be applied evenly within a period of 5 s, and maintained for additional 10 s. The loading device shall be a self-indicating force gauge or other appropriate means having an accuracy of ± 0.5 lb (± 2 N).

7.4.1 Bumper pad ties that share a common attachment shall be tested together, as if one tie.

NOTE 2—There is no single clamp or attachment means specified for the bumper pad tie attachment strength test. Any suitable means may be used to apply the force specified in 7.4.

8. Product/Package Marking

8.1 Each product shall have a permanent conspicuous label that identifies the name and address (city, state, and zip code) of the manufacturer, distributor, or seller, or a label that identifies the Registered Identification Number (RN) or Wool Products Labeling Act Number (WPL).³

8.2 Product Warning Labels—A permanent conspicuous label(s) shall be on each infant bedding and related accessory as specified in this section. The label(s) shall be in the ANSI format, which would include a delineated signal word panel containing the safety alert symbol before the signal word and a contrasting background. The label(s) shall begin with the word “WARNING,” the letters of which shall not be less than 0.2 in. (5 mm) high. The remaining text shall be in letters whose upper case shall be not less than 0.1 in. (2.5 mm) high.

8.2.1 Crib Headboard/Bumper Set or Bumper—For all headboard/bumper sets or bumpers sold as multiple panels and that can be used separately, all separate panels shall contain the warning label in this section. The warning label(s) for a headboard/bumper set or bumper shall read as follows:

△ WARNING

To reduce the risk of suffocation, keep top of bumper up and in position. DO NOT allow bumper to sag down or in toward the sleeping surface. DO NOT use bumper if sagging cannot be corrected.

³ RN/WPL is the Registration Number/Wool Products Labeling Act under the Federal Trade Commission.



To prevent entanglement or strangulation, position ties to outside of crib and be sure they are secure.
Remove bumper when child can sit up unaided or can pull to a standing position.

8.2.2 Fabric Wall Hanging—The warning label for a fabric wall hanging shall read as follows:

△ WARNING

To prevent entanglement or strangulation, do not place within a child’s reach (including a standing child).
Not intended as a toy.

8.2.3 Mattress Covers—The warning label for mattress covers shall read as follows:

8.2.3.1 For flat covers:

△ WARNING

Prevent suffocation or entanglement hazard. This cover shall only be used in a crib or sleep environment when properly secured underneath a tight fitting sheet that fits securely on mattress and wraps around the mattress corners.

8.2.3.2 For fitted mattress covers:

△ WARNING

Possible strangulation or entanglement hazard. Never use crib mattress cover unless it fits securely on crib mattress and wraps around the mattress corners.

8.2.4 Pillows—The warning label for a pillow shall read as follows:

△ WARNING

To prevent suffocation, do not put any pillow in a crib or near an area where an infant may sleep.
Pillows are a decorator item only and are not intended for an infant’s use.

8.2.5 Diaper Stacker—The warning label for a diaper stacker shall read as follows:

△ WARNING

Prevent strangulation or entanglement.
Never place on or attach to a crib.

8.2.6 Fitted Sheet—The warning label for a fitted sheet shall read as follows:

△ WARNING

Prevent possible strangulation or entanglement.
Never use crib sheet unless it fits securely on crib mattress.

8.2.6.1 Package Warning Statement—A warning statement shall be on each fitted sheet retail package. The warning statement shall be in the ANSI format as stated in 8.2, but with the sizes of 3-mm height for “WARNING” and 2-mm height for the rest of the words in the ANSI format.

(1) The warning statement for a fitted sheet retail package shall read as follows:

⚠ WARNING

Prevent possible strangulation or entanglement. Never use crib sheet unless it fits securely on crib mattress.

9. Keywords

9.1 bumper guard; diaper stacker; fitted sheet; infant bedding; wall hanging

APPENDIX

(Nonmandatory Information)

X1. RATIONALE

X1.1 *Subsection 6.2*—The intent of this requirement is to limit the maximum thickness of crib bumpers. The CPSC has stated that pillows in the infant's sleeping environment pose a potential suffocation hazard, and therefore bumpers that are "pillow-like" should also be regarded as potentially hazardous. Also, ASTM standards for maximum thickness exist for other padded items infants interact with such as play yard pads. The 2-in. opening of the test fixture limits the overall thickness of bumpers to a thickness that has not been known to present a hazard and allows for excessive fabric, fabric seams, and bumper ties. The 5-lb weight was selected as it was thought that this was a very small force that when applied would allow for bumpers to slide through the gauge during testing and compensate for any excessive fabric, fabric seams, and bumper ties.

X1.2 *Subsection 7.1*—The neck circumference of a 5th percentile 0-3 month old infant is 7.2 in. (183 mm), as stated in the University of Michigan final report to the CPSC dated January 1986. Based on this measurement, the Infant Bedding and Related Accessories Subcommittee has mandated the maximum allowable length of decorative components attached to any infant bedding or related accessory item to be 7.0 in. (180 mm). The maximum allowable length of attachment result in death or serious injury.

X1.3 *Section 8*—Warning labels for headboard/bumpers, mattress covers, rail covers, crib liners, wall hangings, pillows, fitted sheets, and diaper stackers have been created to warn the consumer of the hazard that can exist if the product is not used as intended. In most cases, the hazards identified in each warning label are substantiated by data from in-depth investigations of accidents or fatalities, or both, involving the use of the aforementioned products. Based on these facts, the word "prevent," instead of "possible," is used in order to stress the importance of compliance with the stated warning. In addition, the word "Warning" is used as the signal word for these warning labels as *ANSI Z535.4* states that "Warning" indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

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2.1 ANSI Standard.²

ANSI Z535.4 Product Safety Signs and Labels

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3.1 Definitions of Terms Specific to This Standard:

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- 3.1.2 decorative components, *n*—ornamental components attached to a crib bumper for the exclusive use of being a decorative component.
- 3.1.2.1 Discussion—Decorative components include, but are not limited to ribbons, strings, buttons, appliques, embellishments, etc.
- 3.1.3 fabric, *n*—any woven, knit, flexible material that is intended to be sewn together as an assembly.
- 3.1.4 infant bedding and related accessories, *n*—includes the following items intended for use in a nursery: fitted sheets, blankets, dust ruffles, covers and drapes for canopies, pillows, mattress covers, diaper stackers, fabric wall hangings, bumper guards, headboard bumper guards, and comforters.
- 3.1.5 supported vinyl, *n*—calandered sheet vinyl that has been laminated or bonded to a supporting material such as nylon scrim, a polyester non-woven, or other fabric material on the back or has a supporting material integrated inside the vinyl sheet such that the material is not 100 % vinyl.
- 3.1.6 unsupported vinyl, *n*—a flat sheet material calandered from 100 % vinyl plastic.

4. Calibration and Standardization

- 4.1 The relevant tests for an infant bedding product or related accessory can be done in any order, except where specified.
- 4.2 Each test may be conducted on a different sample, unless otherwise specified.
- 4.3 If during the course of conducting tests in accordance with this specification, a test sample sustains any permanent deformation or damage, an additional test sample shall be used for the remainder of the tests unless otherwise specified.

5. General Requirements

- 5.1 Attachment means on bumper guards and headboard bumper guards shall not exceed 9.0 in. (230 mm) when measured in accordance with 7.1.
- 5.2 Decorative components as defined in 3.1.2 shall not exceed 7 in. (180 mm) when measured in accordance with 7.1. If any decorative components can tangle to form a loop, then the perimeter of the loop shall not exceed 14 in. (360 mm) when measured in accordance with 7.1.

² Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

5.3 Threads—Use of monofilament thread in the construction of infant bedding and related accessories is prohibited.

5.4 Bumper guards shall be capable of being secured at or near all corners and at the midpoints of the long sides of the crib. Bumper guards intended for circular cribs shall be capable of being secured at intervals not exceeding 26 in. (660 mm).

6. Performance Requirements

6.1 Unsupported Vinyls:

6.1.1 Unsupported vinyl that is accessible to the infant when the product is installed in the manufacturer's recommended use position shall be 0.012-in. (0.30-mm) nominal thickness or thicker gauge. No minimum thickness is specified for supported vinyl. Any infant bedding or related accessory item composed entirely or in part of unsupported vinyl shall be tested in accordance with 7.2.

6.1.2 Unsupported vinyl materials that are not accessible to the infant when the product is installed in the manufacturer's recommended use position, such as unsupported vinyl used as a liquid barrier in a mattress cover and sandwiched between two layers of fabric are not required to be tested in accordance with 7.2.

6.2 Maximum Bumper Thickness—For crib bumpers manufactured of fabric and filled with a natural or manmade fibrous material, each bumper section shall slide through the bumper thickness test fixture (see Fig. 1) over its entire length when tested in accordance with 7.3. The bumper shall be tested in its pre-washed state and also after three wash/dry cycles performed according to the manufacturer's care instructions.

6.3 Bumper Pad The Strength—Following the testing specified in 7.4, a bumper pad tie shall not fully detach from the bumper pad. Partial detachment or tearing is allowed.

7. Test Methods

7.1 Attachment Means and Decorative Components—Measure each attachment means or decorative component when it is extended to its maximum length under a force of 5 lbf (22 N).

7.2 Vinyl Thickness Measurement—Using a paper micrometer, measure the thickness at four locations, one at each end and two in a location near the middle.

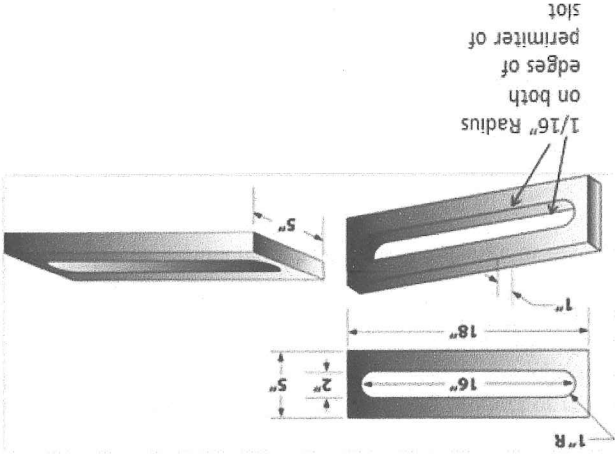


FIG. 1 Bumper Thickness Test Fixture
Note: Test fixture shall be fabricated from aluminum and have a smooth finish

7.3 *Bumper Thickness Test*—Align the bumper thickness test fixture so that the surface of the fixture with the opening is horizontal. Insert a bumper end into the opening so that the bumper end protrudes just beyond the lower surface of the test fixture and attach a 5-lb static weight to the midpoint of the protruding bumper end. Keeping the bumper positioned vertically, allow the weight to slowly draw the bumper through the opening.

NOTE 1—If bumper ties or other localized means provided to secure the bumper to the crib interfere with the bumper sliding through the bumper thickness test fixture, ease the ties or fasteners through the fixture and then continue the test.

7.4 *Bumper Pad Tie Attachment Strength*—Apply a tensile force of 20 lb on the bumper pad tie(s) in a perpendicular direction away from the attachment point of the ties to the bumper pad. The force shall be applied evenly within a period of 5 s, and maintained for additional 10 s. The loading device shall be a self-indicating force gauge or other appropriate means having an accuracy of ± 0.5 lb (± 2 N).

7.4.1 Bumper pad ties that share a common attachment shall be tested together, as if one tie.

NOTE 2—There is no single clamp or attachment means specified for the bumper pad tie attachment strength test. Any suitable means may be used to apply the force specified in 7.4.

8. Product/Package Marking

8.1 Each product shall have a permanent conspicuous label that identifies the name and address (city, state, and zip code) of the manufacturer, distributor, or seller, or a label that identifies the Registered Identification Number (RN) or Wool Products Labeling Act Number (WPL).³

8.2 *Product Warning Labels*—A permanent conspicuous label(s) shall be on each infant bedding and related accessory as specified in this section. The label(s) shall be in the ANSI format, which would include a delineated signal word panel containing the safety alert symbol before the signal word and a contrasting background. The label(s) shall begin with the word “WARNING,” the letters of which shall not be less than 0.2 in. (5 mm) high. The remaining text shall be in letters whose upper case shall be not less than 0.1 in. (2.5 mm) high.

8.2.1 *Crib Headboard/Bumper Set or Bumper*—For all headboard/bumper sets or bumpers sold as multiple panels and that can be used separately, all separate panels shall contain the warning label in this section. The warning label(s) for a headboard/bumper set or bumper shall read as follows:

△ WARNING

To reduce the risk of suffocation, keep top of bumper up and in position. DO NOT allow bumper to sag down or in toward the sleeping surface. DO NOT use bumper if sagging cannot be corrected.

³ RN/WPL is the Registration Number/Wool Products Labeling Act under the Federal Trade Commission.



To prevent entanglement or strangulation, position ties to outside of crib and be sure they are secure.
Remove bumper when child can sit up unaided or can pull to a standing position.

8.2.2 *Fabric Wall Hanging*—The warning label for a fabric wall hanging shall read as follows:

△ WARNING

To prevent entanglement or strangulation, do not place within a child’s reach (including a standing child).
Not intended as a toy.

8.2.3 *Mattress Covers*—The warning label for mattress covers shall read as follows:

8.2.3.1 For flat covers:

△ WARNING

Prevent suffocation or entanglement hazard. This cover shall only be used in a crib or sleep environment when properly secured underneath a tight fitting sheet that fits securely on mattress and wraps around the mattress corners.

8.2.3.2 For fitted mattress covers:

△ WARNING

Possible strangulation or entanglement hazard. Never use crib mattress cover unless it fits securely on crib mattress and wraps around the mattress corners.

8.2.4 *Pillows*—The warning label for a pillow shall read as follows:

△ WARNING

To prevent suffocation, do not put any pillow in a crib or near an area where an infant may sleep.
Pillows are a decorator item only and are not intended for an infant’s use.

8.2.5 *Diaper Stacker*—The warning label for a diaper stacker shall read as follows:

△ WARNING

Prevent strangulation or entanglement.
Never place on or attach to a crib.

8.2.6 *Fitted Sheet*—The warning label for a fitted sheet shall read as follows:

△ WARNING

Prevent possible strangulation or entanglement.
Never use crib sheet unless it fits securely on crib mattress.

8.2.6.1 *Package Warning Statement*—A warning statement shall be on each fitted sheet retail package. The warning statement shall be in the ANSI format as stated in 8.2, but with the sizes of 3-mm height for “WARNING” and 2-mm height for the rest of the words in the ANSI format.

(1) The warning statement for a fitted sheet retail package shall read as follows:

▲ WARNING

Prevent possible strangulation or entanglement.
Never use crib sheet unless it fits securely on crib mattress.

9. Keywords

9.1 bumper guard; diaper stacker; fitted sheet; infant bedding; wall hanging

APPENDIX

(Nonmandatory Information)

X1. RATIONALE

X1.1 *Subsection 6.2*—The intent of this requirement is to limit the maximum thickness of crib bumpers. The CPSC has stated that pillows in the infant's sleeping environment pose a potential suffocation hazard, and therefore bumpers that are "pillow-like" should also be regarded as potentially hazardous. Also, ASTM standards for maximum thickness exist for other padded items infants interact with such as play yard pads. The 2-in. opening of the test fixture limits the overall thickness of bumpers to a thickness that has not been known to present a hazard and allows for excessive fabric, fabric seams, and bumper ties. The 5-lb weight was selected as it was thought that this was a very small force that when applied would allow for bumpers to slide through the gauge during testing and compensate for any excessive fabric, fabric seams, and bumper ties.

X1.2 *Subsection 7.1*—The neck circumference of a 5th percentile 0-3 month old infant is 7.2 in. (183 mm), as stated in the University of Michigan final report to the CPSC dated January 1986. Based on this measurement, the Infant Bedding and Related Accessories Subcommittee has mandated the maximum allowable length of decorative components attached to any infant bedding or related accessory item to be 7.0 in. (180 mm). The maximum allowable length of attachment

X1.3 *Section 8*—Warning labels for headboard/bumpers, mattress covers, rail covers, crib liners, wall hangings, pillows, fitted sheets, and diaper stackers have been created to warn the consumer of the hazard that can exist if the product is not used as intended. In most cases, the hazards identified in each warning label are substantiated by data from in-depth investigations of accidents or fatalities, or both, involving the use of the aforementioned products. Based on these facts, the word "prevent," instead of "possible," is used in order to stress the importance of compliance with the stated warning. In addition, the word "Warning" is used as the signal word for these warning labels as **ANSI Z535.4** states that "Warning" indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

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Standard Consumer Safety Performance Specification for Infant Bedding and Related Accessories¹

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INTRODUCTION

This consumer safety performance specification addresses incidents associated with infant bedding and related accessories that were reported to the U.S. Consumer Product Safety Commission (CPSC). These incident reports involved entanglement or strangulation on decorative ribbons, bumper guard ties, wall hangings, fitted sheets, and threads resulting from unraveled seams. It also addresses potential suffocation on decorative pillows placed in cribs.

In response to the incident data developed by the CPSC, this consumer safety performance specification attempts to minimize the problems listed above. This effort is accomplished through the establishment of performance requirements and warning labels for infant bedding and accessories. This specification cannot prevent incidents that occur as the result of unforeseeable abuse and misuse.

NOTE—This consumer safety performance specification is not intended to address incidents and injuries resulting from the interaction of other persons with children using these products or the incidents resulting from unforeseeable abuse and misuse.

This consumer safety performance specification has been written based on current state-of-the-art softgoods technology. This consumer safety performance specification will be updated whenever substantive information becomes available.

1. Scope

1.1 This consumer safety performance specification establishes safety performance requirements, test methods, and requirements for labeling to minimize the identified hazards to children presented by infant bedding and related accessories as identified in the introduction.

1.2 No infant bedding or related accessory produced after the approval date of the consumer safety performance specification shall indicate, either by label or other means, compliance with this specification unless it conforms to all applicable requirements contained herein.

1.3 The inspection and test procedures contained herein shall be used to determine the conformance of products to the requirements of this consumer safety performance specification. The relevant tests for an infant bedding product or related accessory can be done in any order, except where specified. Each test may be conducted on a different sample, unless otherwise specified. The tests can be considered as qualification tests and not necessarily as quality control tests. These tests shall also be conducted when there is a design or material

change in the infant bedding or related accessory item. Each producer or distributor who represents any products as conforming to this specification may utilize statistically based sampling plans that are appropriate and shall keep such essential records as are necessary to document that all of the requirements of this specification have been met. Any test methods that are made mandatory by the CPSC, or any applicable governmental agencies, shall supersede any applicable test methods in this specification.

1.4 These tests are intended to simulate normal use conditions, so as to ensure that hazards are not generated through normal use. The tests shall be carried out in a normal use environment. For example, bumper guards should be secured in a crib as a customer would in actual end use situations. Ties should be tied and untied. While no specific requirements are defined here, the evaluator shall perform enough testing to simulate normal use during the estimated lifetime of the product. The infant bedding product or related accessory shall be inspected after such tests and shall be evaluated according to the relevant requirements listed within this specification.

1.5 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.

1.6 The following safety hazards caveat pertains only to the test method portion, Section 8, of this consumer safety performance specification: *This standard does not purport to address*

¹ This consumer safety performance specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.19 on Infant Bedding.

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the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 ANSI Standard:²

ANSI Z535.4 Product Safety Signs and Labels

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 attachment means, *n*—flexible ribbons, strings, and ties attached to a bumper for the purpose of attaching to a crib. 3.1.2 decorative components, *n*—ornamental components attached to a crib bumper for the exclusive use of being a decorative component.

3.1.2.1 Discussion—Decorative components include, but are not limited to ribbons, strings, buttons, appliques, embellishments, etc.

3.1.3 fabric, *n*—any woven, knit, flexible material that is intended to be sewn together as an assembly.

3.1.4 infant bedding and related accessories, *n*—includes the following items intended for use in a nursery: fitted sheets, blankets, dust ruffles, covers and drapes for canopies, pillows, mattress covers, diaper stackers, fabric wall hangings, bumper guards, headboard bumper guards, and comforters.

3.1.5 supported vinyl, *n*—calandered sheet vinyl that has been laminated or bonded to a supporting material such as nylon scrim, a polyester non-woven, or other fabric material on the back or has a supporting material integrated inside the vinyl sheet such that the material is not 100% vinyl. 3.1.6 unsupported vinyl, *n*—a flat sheet material calandered from 100% vinyl plastic.

4. Calibration and Standardization

4.1 The relevant tests for an infant bedding product or related accessory can be done in any order, except where specified. 4.2 Each test may be conducted on a different sample, unless otherwise specified. 4.3 If during the course of conducting tests in accordance with this specification, a test sample sustains any permanent deformation or damage, an additional test sample shall be used for the remainder of the tests unless otherwise specified.

5. General Requirements

5.1 Attachment means on bumper guards and headboard bumper guards shall not exceed 9.0 in. (230 mm) when measured in accordance with 7.1. 5.2 Decorative components as defined in 3.1.2 shall not exceed 7 in. (180 mm) when measured in accordance with 7.1. If any decorative components can tangle to form a loop, then the perimeter of the loop shall not exceed 14 in. (360 mm) when measured in accordance with 7.1.

5.3 Threads—Use of monofilament thread in the construction of infant bedding and related accessories is prohibited. 5.4 Bumper guards shall be capable of being secured at or near all corners and at the midpoints of the long sides of the crib. Bumper guards intended for circular cribs shall be capable of being secured at intervals not exceeding 26 in. (660 mm).

6. Performance Requirements

6.1 Unsupported Vinyis:

6.1.1 Unsupported vinyl that is accessible to the infant when the product is installed in the manufacturer's recommended use position shall be 0.012-in. (0.30-mm) nominal thickness or thicker gauge. No minimum thickness is specified for supported vinyl. Any infant bedding or related accessory item tested in accordance with 7.2.

6.1.2 Unsupported vinyl materials that are not accessible to the infant when the product is installed in the manufacturer's recommended use position, such as unsupported vinyl used as a liquid barrier in a mattress cover and sandwiched between two layers of fabric are not required to be tested in accordance with 7.2.

6.2 Maximum Bumper Thickness—For crib bumpers manufactured of fabric and filled with a natural or manmade fibrous material, each bumper section shall slide through the bumper thickness test fixture (see Fig. 1) over its entire length when tested in accordance with 7.3. The bumper shall be tested in its pre-washed state and also after three wash/dry cycles performed according to the manufacturer's care instructions. 6.3 Bumper Pad Tie Strength—Following the testing specified in 7.4, a bumper pad tie shall not fully detach from the bumper pad. Partial detachment or tearing is allowed.

7. Test Methods

7.1 Attachment Means and Decorative Components—Measure each attachment means or decorative component when it is extended to its maximum length under a force of 5 lbf (22 N). 7.2 Vinyl Thickness Measurement—Using a paper micrometer, measure the thickness at four locations, one at each end and two in a location near the middle.

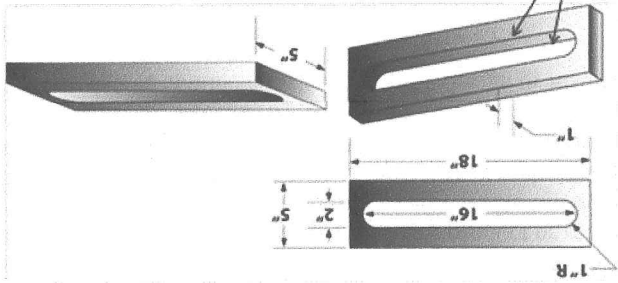


FIG. 1 Bumper Thickness Test Fixture

Note: Test fixture shall be fabricated from aluminum and have a smooth finish

² Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

7.3 Bumper Thickness Test—Align the bumper thickness test fixture so that the surface of the fixture with the opening is horizontal. Insert a bumper end into the opening so that the bumper end protrudes just beyond the lower surface of the test fixture and attach a 5-lb static weight to the midpoint of the protruding bumper end. Keeping the bumper positioned vertically, allow the weight to slowly draw the bumper through the opening.

NOTE 1—If bumper ties or other localized means provided to secure the bumper to the crib interfere with the bumper sliding through the bumper thickness test fixture, ease the ties or fasteners through the fixture and then continue the test.

7.4 Bumper Pad Tie Attachment Strength—Apply a tensile force of 20 lb on the bumper pad tie(s) in a perpendicular direction away from the attachment point of the ties to the bumper pad. The force shall be applied evenly within a period of 5 s, and maintained for additional 10 s. The loading device shall be a self-indicating force gauge or other appropriate means having an accuracy of ± 0.5 lb (± 2 N).

7.4.1 Bumper pad ties that share a common attachment shall be tested together, as if one tie.

NOTE 2—There is no single clamp or attachment means specified for the bumper pad tie attachment strength test. Any suitable means may be used to apply the force specified in **7.4**.

8. Product/Package Marking

8.1 Each product shall have a permanent conspicuous label that identifies the name and address (city, state, and zip code) of the manufacturer, distributor, or seller, or a label that identifies the Registered Identification Number (RN) or Wool Products Labeling Act Number (WPL).³

8.2 Product Warning Labels—A permanent conspicuous label(s) shall be on each infant bedding and related accessory as specified in this section. The label(s) shall be in the ANSI format, which would include a delineated signal word panel containing the safety alert symbol before the signal word and a contrasting background. The label(s) shall begin with the word “WARNING,” the letters of which shall not be less than 0.2 in. (5 mm) high. The remaining text shall be in letters whose upper case shall be not less than 0.1 in. (2.5 mm) high.

8.2.1 Crib Headboard/Bumper Set or Bumper—For all headboard/bumper sets or bumpers sold as multiple panels and that can be used separately, all separate panels shall contain the warning label in this section. The warning label(s) for a headboard/bumper set or bumper shall read as follows:

△ WARNING

To reduce the risk of suffocation, keep top of bumper up and in position. DO NOT allow bumper to sag down or in toward the sleeping surface. DO NOT use bumper if sagging cannot be corrected.

³ RN/WPL is the Registration Number/Wool Products Labeling Act under the Federal Trade Commission.



To prevent entanglement or strangulation, position ties to outside of crib and be sure they are secure.
Remove bumper when child can sit up unaided or can pull to a standing position.

8.2.2 Fabric Wall Hanging—The warning label for a fabric wall hanging shall read as follows:

△ WARNING

To prevent entanglement or strangulation, do not place within a child’s reach (including a standing child).
Not intended as a toy.

8.2.3 Mattress Covers—The warning label for mattress covers shall read as follows:

8.2.3.1 For flat covers:

△ WARNING

Prevent suffocation or entanglement hazard. This cover shall only be used in a crib or sleep environment when properly secured underneath a tight fitting sheet that fits securely on mattress and wraps around the mattress corners.

8.2.3.2 For fitted mattress covers:

△ WARNING

Possible strangulation or entanglement hazard. Never use crib mattress cover unless it fits securely on crib mattress and wraps around the mattress corners.

8.2.4 Pillows—The warning label for a pillow shall read as follows:

△ WARNING

To prevent suffocation, do not put any pillow in a crib or near an area where an infant may sleep.
Pillows are a decorator item only and are not intended for an infant’s use.

8.2.5 Diaper Stacker—The warning label for a diaper stacker shall read as follows:

△ WARNING

Prevent strangulation or entanglement.
Never place on or attach to a crib.

8.2.6 Fitted Sheet—The warning label for a fitted sheet shall read as follows:

△ WARNING

Prevent possible strangulation or entanglement.
Never use crib sheet unless it fits securely on crib mattress.

8.2.6.1 Package Warning Statement—A warning statement shall be on each fitted sheet retail package. The warning statement shall be in the ANSI format as stated in **8.2**, but with the sizes of 3-mm height for “WARNING” and 2-mm height for the rest of the words in the ANSI format.

(1) The warning statement for a fitted sheet retail package shall read as follows:

▲ WARNING

Prevent possible strangulation or entanglement. Never use crib sheet unless it fits securely on crib mattress.

9. Keywords

9.1 bumper guard; diaper stacker; fitted sheet; infant bedding; wall hanging

APPENDIX

(Nonmandatory Information)

XI. RATIONALE

X1.1 *Subsection 6.2*—The intent of this requirement is to limit the maximum thickness of crib bumpers. The CPSC has stated that pillows in the infant's sleeping environment pose a potential suffocation hazard, and therefore bumpers that are "pillow-like" should also be regarded as potentially hazardous. Also, ASTM standards for maximum thickness exist for other padded items infants interact with such as play yard pads. The 2-in. opening of the test fixture limits the overall thickness of bumpers to a thickness that has not been known to present a hazard and allows for excessive fabric, fabric seams, and bumper ties. The 5-lb weight was selected as it was thought that this was a very small force that when applied would allow for bumpers to slide through the gauge during testing and compensate for any excessive fabric, fabric seams, and bumper ties.

X1.2 *Subsection 7.1*—The neck circumference of a 5th percentile 0-3 month old infant is 7.2 in. (183 mm), as stated in the University of Michigan final report to the CPSC dated January 1986. Based on this measurement, the Infant Bedding and Related Accessories Subcommittee has mandated the maximum allowable length of decorative components attached to any infant bedding or related accessory item to be 7.0 in. (180 mm). The maximum allowable length of attachment result in death or serious injury.

X1.3 *Section 8*—Warning labels for headboard/bumpers, mattress covers, rail covers, crib liners, wall hangings, pillows, fitted sheets, and diaper stackers have been created to warn the consumer of the hazard that can exist if the product is not used as intended. In most cases, the hazards identified in each warning label are substantiated by data from in-depth investigations of accidents or fatalities, or both, involving the use of the aforementioned products. Based on these facts, the word "prevent," instead of "possible," is used in order to stress the importance of compliance with the stated warning. In addition, the word "Warning" is used as the signal word for these warning labels as *ANSI Z535.4* states that "Warning" indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

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ANSI Z535.4 Product Safety Signs and Labels

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

- 3.1.1 attachment means, *n*—flexible ribbons, strings, and ties attached to a bumper for the purpose of attaching to a crib.
- 3.1.2 decorative components, *n*—ornamental components attached to a crib bumper for the exclusive use of being a decorative component.
- 3.1.2.1 Discussion—Decorative components include, but are not limited to ribbons, strings, buttons, appliques, embellishments, etc.
- 3.1.3 fabric, *n*—any woven, knit, flexible material that is intended to be sewn together as an assembly.
- 3.1.4 infant bedding and related accessories, *n*—includes the following items intended for use in a nursery: fitted sheets, blankets, dust ruffles, covers and drapes for canopies, pillows, mattress covers, diaper stackers, fabric wall hangings, bumper guards, headboard bumper guards, and comforters.
- 3.1.5 supported vinyl, *n*—calandered sheet vinyl that has been laminated or bonded to a supporting material such as nylon scrim, a polyester non-woven, or other fabric material on the back or has a supporting material integrated inside the vinyl sheet such that the material is not 100% vinyl.
- 3.1.6 unsupported vinyl, *n*—a flat sheet material calandered from 100% vinyl plastic.

4. Calibration and Standardization

4.1 The relevant tests for an infant bedding product or related accessory can be done in any order, except where specified.

4.2 Each test may be conducted on a different sample, unless otherwise specified.

4.3 If during the course of conducting tests in accordance with this specification, a test sample sustains any permanent deformation or damage, an additional test sample shall be used for the remainder of the tests unless otherwise specified.

5. General Requirements

5.1 Attachment means on bumper guards and headboard bumper guards shall not exceed 9.0 in. (230 mm) when measured in accordance with 7.1.

5.2 Decorative components as defined in 3.1.2 shall not exceed 7 in. (180 mm) when measured in accordance with 7.1. If any decorative components can tangle to form a loop, then the perimeter of the loop shall not exceed 14 in. (360 mm) when measured in accordance with 7.1.

² Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

5.3 Threads—Use of monofilament thread in the construction of infant bedding and related accessories is prohibited.

5.4 Bumper guards shall be capable of being secured at or near all corners and at the midpoints of the long sides of the crib. Bumper guards intended for circular cribs shall be capable of being secured at intervals not exceeding 26 in. (660 mm).

6. Performance Requirements

6.1 Unsupported Vinyls:

6.1.1 Unsupported vinyl that is accessible to the infant when the product is installed in the manufacturer's recommended use position shall be 0.012-in. (0.30-mm) nominal thickness or thicker gauge. No minimum thickness is specified for supported vinyl. Any infant bedding or related accessory item composed entirely or in part of unsupported vinyl shall be tested in accordance with 7.2.

6.1.2 Unsupported vinyl materials that are not accessible to the infant when the product is installed in the manufacturer's recommended use position, such as unsupported vinyl used as a liquid barrier in a mattress cover and sandwiched between two layers of fabric are not required to be tested in accordance with 7.2.

6.2 Maximum Bumper Thickness—For crib bumpers manufactured of fabric and filled with a natural or manmade fibrous material, each bumper section shall slide through the bumper thickness test fixture (see Fig. 1) over its entire length when tested in accordance with 7.3. The bumper shall be tested in its pre-washed state and also after three wash/dry cycles performed according to the manufacturer's care instructions.

6.3 Bumper Pad Tie Strength—Following the testing specified in 7.4, a bumper pad tie shall not fully detach from the bumper pad. Partial detachment or tearing is allowed.

7. Test Methods

7.1 Attachment Means and Decorative Components—Measure each attachment means or decorative component when it is extended to its maximum length under a force of 5 lbf (22 N).

7.2 Vinyl Thickness Measurement—Using a paper micrometer, measure the thickness at four locations, one at each end and two in a location near the middle.

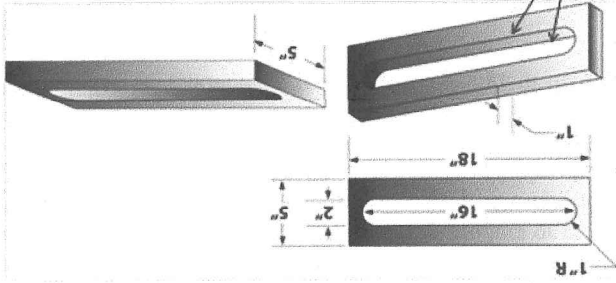


FIG. 1 Bumper Thickness Test Fixture

Note: Test fixture shall be fabricated from aluminum and have a smooth finish

7.3 Bumper Thickness Test—Align the bumper thickness test fixture so that the surface of the fixture with the opening is horizontal. Insert a bumper end into the opening so that the bumper end protrudes just beyond the lower surface of the test fixture and attach a 5-lb static weight to the midpoint of the protruding bumper end. Keeping the bumper positioned vertically, allow the weight to slowly draw the bumper through the opening.

NOTE 1—If bumper ties or other localized means provided to secure the bumper to the crib interfere with the bumper sliding through the bumper thickness test fixture, ease the ties or fasteners through the fixture and then continue the test.

7.4 Bumper Pad Tie Attachment Strength—Apply a tensile force of 20 lb on the bumper pad tie(s) in a perpendicular direction away from the attachment point of the ties to the bumper pad. The force shall be applied evenly within a period of 5 s, and maintained for additional 10 s. The loading device shall be a self-indicating force gauge or other appropriate means having an accuracy of ± 0.5 lb (± 2 N).

7.4.1 Bumper pad ties that share a common attachment shall be tested together, as if one tie.

NOTE 2—There is no single clamp or attachment means specified for the bumper pad tie attachment strength test. Any suitable means may be used to apply the force specified in **7.4**.

8. Product/Package Marking

8.1 Each product shall have a permanent conspicuous label that identifies the name and address (city, state, and zip code) of the manufacturer, distributor, or seller, or a label that identifies the Registered Identification Number (RN) or Wool Products Labeling Act Number (WPL).³

8.2 Product Warning Labels—A permanent conspicuous label(s) shall be on each infant bedding and related accessory as specified in this section. The label(s) shall be in the ANSI format, which would include a delineated signal word panel containing the safety alert symbol before the signal word and a contrasting background. The label(s) shall begin with the word “WARNING,” the letters of which shall not be less than 0.2 in. (5 mm) high. The remaining text shall be in letters whose upper case shall be not less than 0.1 in. (2.5 mm) high.

8.2.1 Crib Headboard/Bumper Set or Bumper—For all headboard/bumper sets or bumpers sold as multiple panels and that can be used separately, all separate panels shall contain the warning label in this section. The warning label(s) for a headboard/bumper set or bumper shall read as follows:

△ WARNING

To reduce the risk of suffocation, keep top of bumper up and in position. DO NOT allow bumper to sag down or in toward the sleeping surface. DO NOT use bumper if sagging cannot be corrected.

³ RN/WPL is the Registration Number/Wool Products Labeling Act under the Federal Trade Commission.



To prevent entanglement or strangulation, position ties to outside of crib and be sure they are secure.
Remove bumper when child can sit up unaided or can pull to a standing position.

8.2.2 Fabric Wall Hanging—The warning label for a fabric wall hanging shall read as follows:

△ WARNING

To prevent entanglement or strangulation, do not place within a child’s reach (including a standing child).
Not intended as a toy.

8.2.3 Mattress Covers—The warning label for mattress covers shall read as follows:

8.2.3.1 For flat covers:

△ WARNING

Prevent suffocation or entanglement hazard. This cover shall only be used in a crib or sleep environment when properly secured underneath a tight fitting sheet that fits securely on mattress and wraps around the mattress corners.

8.2.3.2 For fitted mattress covers:

△ WARNING

Possible strangulation or entanglement hazard. Never use crib mattress cover unless it fits securely on crib mattress and wraps around the mattress corners.

8.2.4 Pillows—The warning label for a pillow shall read as follows:

△ WARNING

To prevent suffocation, do not put any pillow in a crib or near an area where an infant may sleep.
Pillows are a decorator item only and are not intended for an infant’s use.

8.2.5 Diaper Stacker—The warning label for a diaper stacker shall read as follows:

△ WARNING

Prevent strangulation or entanglement.
Never place on or attach to a crib.

8.2.6 Fitted Sheet—The warning label for a fitted sheet shall read as follows:

△ WARNING

Prevent possible strangulation or entanglement.
Never use crib sheet unless it fits securely on crib mattress.

8.2.6.1 Package Warning Statement—A warning statement shall be on each fitted sheet retail package. The warning statement shall be in the ANSI format as stated in **8.2**, but with the sizes of 3-mm height for “WARNING” and 2-mm height for the rest of the words in the ANSI format.

(1) The warning statement for a fitted sheet retail package shall read as follows:



Standard Consumer Safety Performance Specification for Infant Bedding and Related Accessories¹

This standard is issued under the fixed designation F1917; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

This consumer safety performance specification addresses incidents associated with infant bedding and related accessories that were reported to the U.S. Consumer Product Safety Commission (CPSC). These incident reports involved entanglement or strangulation on decorative ribbons, bumper guard ties, wall hangings, fitted sheets, and threads resulting from unraveled seams. It also addresses potential suffocation on decorative pillows placed in cribs.

In response to the incident data developed by the CPSC, this consumer safety performance specification attempts to minimize the problems listed above. This effort is accomplished through the establishment of performance requirements and warning labels for infant bedding and accessories. This specification cannot prevent incidents that occur as the result of unforeseeable abuse and misuse.

NOTE—This consumer safety performance specification is not intended to address incidents and injuries resulting from the interaction of other persons with children using these products or the incidents resulting from unforeseeable abuse and misuse.

This consumer safety performance specification has been written based on current state-of-the-art softgoods technology. This consumer safety performance specification will be updated whenever substantive information becomes available.

1. Scope

1.1 This consumer safety performance specification establishes safety performance requirements, test methods, and requirements for labeling to minimize the identified hazards to children presented by infant bedding and related accessories as identified in the introduction.

1.2 No infant bedding or related accessory produced after the approval date of the consumer safety performance specification shall indicate, either by label or other means, compliance with this specification unless it conforms to all applicable requirements contained herein.

1.3 The inspection and test procedures contained herein shall be used to determine the conformance of products to the requirements of this consumer safety performance specification. The relevant tests for an infant bedding product or related accessory can be done in any order, except where specified. Each test may be conducted on a different sample, unless otherwise specified. The tests can be considered as qualification tests and not necessarily as quality control tests. These tests shall also be conducted when there is a design or material

change in the infant bedding or related accessory item. Each producer or distributor who represents any products as conforming to this specification may utilize statistically based sampling plans that are appropriate and shall keep such essential records as are necessary to document that all of the requirements of this specification have been met. Any test methods that are made mandatory by the CPSC, or any applicable governmental agencies, shall supersede any applicable test methods in this specification.

1.4 These tests are intended to simulate normal use conditions, so as to ensure that hazards are not generated through normal use. The tests shall be carried out in a normal use environment. For example, bumper guards should be secured in a crib as a customer would in actual end use situations. Ties should be tied and untied. While no specific requirements are defined here, the evaluator shall perform enough testing to simulate normal use during the estimated lifetime of the product. The infant bedding product or related accessory shall be inspected after such tests and shall be evaluated according to the relevant requirements listed within this specification.

1.5 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.

1.6 The following safety hazards caveat pertains only to the test method portion, Section 8, of this consumer safety performance specification: *This standard does not purport to address*

¹ This consumer safety performance specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.19 on Infant Bedding.

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the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

- 2.1 ANSI Standard.²
- ANSI Z535.4 Product Safety Signs and Labels

3. Terminology

- 3.1 Definitions of Terms Specific to This Standard:
 - 3.1.1 attachment means, *n*—flexible ribbons, strings, and ties attached to a bumper for the purpose of attaching to a crib.
 - 3.1.2 decorative components, *n*—ornamental components attached to a crib bumper for the exclusive use of being a decorative component.
 - 3.1.2.1 Discussion—Decorative components include, but are not limited to ribbons, strings, buttons, appliques, embellishments, etc.
 - 3.1.3 fabric, *n*—any woven, knit, flexible material that is intended to be sewn together as an assembly.
 - 3.1.4 infant bedding and related accessories, *n*—includes the following items intended for use in a nursery: fitted sheets, blankets, dust ruffles, covers and drapes for canopies, pillows, mattress covers, diaper stackers, fabric wall hangings, bumper guards, headboard bumper guards, and comforters.
 - 3.1.5 supported vinyl, *n*—calandered sheet vinyl that has been laminated or bonded to a supporting material such as nylon scrim, a polyester non-woven, or other fabric material on the back or has a supporting material integrated inside the vinyl sheet such that the material is not 100% vinyl.
 - 3.1.6 unsupported vinyl, *n*—a flat sheet material calandered from 100% vinyl plastic.

4. Calibration and Standardization

- 4.1 The relevant tests for an infant bedding product or related accessory can be done in any order, except where specified.
- 4.2 Each test may be conducted on a different sample, unless otherwise specified.
- 4.3 If during the course of conducting tests in accordance with this specification, a test sample sustains any permanent deformation or damage, an additional test sample shall be used for the remainder of the tests unless otherwise specified.

5. General Requirements

- 5.1 Attachment means on bumper guards and headboard bumper guards shall not exceed 9.0 in. (230 mm) when measured in accordance with 7.1.
- 5.2 Decorative components as defined in 3.1.2 shall not exceed 7 in. (180 mm) when measured in accordance with 7.1. If any decorative components can tangle to form a loop, then the perimeter of the loop shall not exceed 14 in. (360 mm) when measured in accordance with 7.1.

² Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

5.3 Threads—Use of monofilament thread in the construction of infant bedding and related accessories is prohibited.

5.4 Bumper guards shall be capable of being secured at or near all corners and at the midpoints of the long sides of the crib. Bumper guards intended for circular cribs shall be capable of being secured at intervals not exceeding 26 in. (660 mm).

6. Performance Requirements

- 6.1 Unsupported Vinyls:
 - 6.1.1 Unsupported vinyl that is accessible to the infant when the product is installed in the manufacturer's recommended use position shall be 0.012-in. (0.30-mm) nominal thickness or thicker gauge. No minimum thickness is specified for supported vinyl. Any infant bedding or related accessory item composed entirely or in part of unsupported vinyl shall be tested in accordance with 7.2.
 - 6.1.2 Unsupported vinyl materials that are not accessible to the infant when the product is installed in the manufacturer's recommended use position, such as unsupported vinyl used as a liquid barrier in a mattress cover and sandwiched between two layers of fabric are not required to be tested in accordance with 7.2.
- 6.2 Maximum Bumper Thickness—For crib bumpers manufactured of fabric and filled with a natural or manmade fibrous material, each bumper section shall slide through the bumper thickness test fixture (see Fig. 1) over its entire length when tested in accordance with 7.3. The bumper shall be tested in its pre-washed state and also after three wash/dry cycles performed according to the manufacturer's care instructions.
- 6.3 Bumper Pad Tie Strength—Following the testing specified in 7.4, a bumper pad tie shall not fully detach from the bumper pad. Partial detachment or tearing is allowed.

7. Test Methods

- 7.1 Attachment Means and Decorative Components—Measure each attachment means or decorative component when it is extended to its maximum length under a force of 5 lbf (22 N).
- 7.2 Vinyl Thickness Measurement—Using a paper micrometer, measure the thickness at four locations, one at each end and two in a location near the middle.

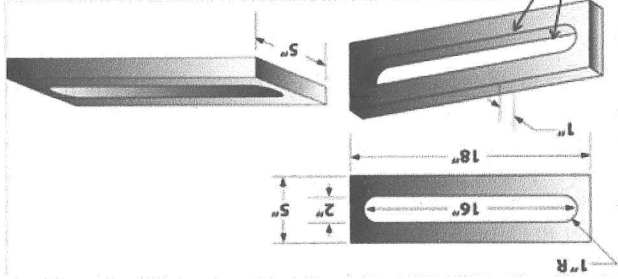


FIG. 1 Bumper Thickness Test Fixture

Note: Test fixture shall be fabricated from aluminum and have a smooth finish

7.3 Bumper Thickness Test—Align the bumper thickness test fixture so that the surface of the fixture with the opening is horizontal. Insert a bumper end into the opening so that the bumper end protrudes just beyond the lower surface of the test fixture and attach a 5-lb static weight to the midpoint of the protruding bumper end. Keeping the bumper positioned vertically, allow the weight to slowly draw the bumper through the opening.

NOTE 1—If bumper ties or other localized means provided to secure the bumper to the crib interfere with the bumper sliding through the bumper thickness test fixture, ease the ties or fasteners through the fixture and then continue the test.

7.4 Bumper Pad Tie Attachment Strength—Apply a tensile force of 20 lb on the bumper pad tie(s) in a perpendicular direction away from the attachment point of the ties to the bumper pad. The force shall be applied evenly within a period of 5 s, and maintained for additional 10 s. The loading device shall be a self-indicating force gauge or other appropriate means having an accuracy of ± 0.5 lb (± 2 N).

7.4.1 Bumper pad ties that share a common attachment shall be tested together, as if one tie.

NOTE 2—There is no single clamp or attachment means specified for the bumper pad tie attachment strength test. Any suitable means may be used to apply the force specified in **7.4**.

8. Product/Package Marking

8.1 Each product shall have a permanent conspicuous label that identifies the name and address (city, state, and zip code) of the manufacturer, distributor, or seller, or a label that identifies the Registered Identification Number (RN) or Wool Products Labeling Act Number (WPL).³

8.2 Product Warning Labels—A permanent conspicuous label(s) shall be on each infant bedding and related accessory as specified in this section. The label(s) shall be in the ANSI format, which would include a delineated signal word panel containing the safety alert symbol before the signal word and a contrasting background. The label(s) shall begin with the word “WARNING,” the letters of which shall not be less than 0.2 in. (5 mm) high. The remaining text shall be in letters whose upper case shall be not less than 0.1 in. (2.5 mm) high.

8.2.1 Crib Headboard/Bumper Set or Bumper—For all headboard/bumper sets or bumpers sold as multiple panels and that can be used separately, all separate panels shall contain the warning label in this section. The warning label(s) for a headboard/bumper set or bumper shall read as follows:

△ WARNING

To reduce the risk of suffocation, keep top of bumper up and in position. DO NOT allow bumper to sag down or in toward the sleeping surface. DO NOT use bumper if sagging cannot be corrected.

³ RN/WPL is the Registration Number/Wool Products Labeling Act under the Federal Trade Commission.



To prevent entanglement or strangulation, position ties to outside of crib and be sure they are secure.
Remove bumper when child can sit up unaided or can pull to a standing position.

8.2.2 Fabric Wall Hanging—The warning label for a fabric wall hanging shall read as follows:

△ WARNING

To prevent entanglement or strangulation, do not place within a child’s reach (including a standing child).
Not intended as a toy.

8.2.3 Mattress Covers—The warning label for mattress covers shall read as follows:

8.2.3.1 For flat covers:

△ WARNING

Prevent suffocation or entanglement hazard. This cover shall only be used in a crib or sleep environment when properly secured underneath a tight fitting sheet that fits securely on mattress and wraps around the mattress corners.

8.2.3.2 For fitted mattress covers:

△ WARNING

Possible strangulation or entanglement hazard. Never use crib mattress cover unless it fits securely on crib mattress and wraps around the mattress corners.

8.2.4 Pillows—The warning label for a pillow shall read as follows:

△ WARNING

To prevent suffocation, do not put any pillow in a crib or near an area where an infant may sleep.
Pillows are a decorator item only and are not intended for an infant’s use.

8.2.5 Diaper Stacker—The warning label for a diaper stacker shall read as follows:

△ WARNING

Prevent strangulation or entanglement.
Never place on or attach to a crib.

8.2.6 Fitted Sheet—The warning label for a fitted sheet shall read as follows:

△ WARNING

Prevent possible strangulation or entanglement.
Never use crib sheet unless it fits securely on crib mattress.

8.2.6.1 Package Warning Statement—A warning statement shall be on each fitted sheet retail package. The warning statement shall be in the ANSI format as stated in **8.2**, but with the sizes of 3-mm height for “WARNING” and 2-mm height for the rest of the words in the ANSI format.

(1) The warning statement for a fitted sheet retail package shall read as follows:

▲ WARNING

Prevent possible strangulation or entanglement.
Never use crib sheet unless it fits securely on crib mattress.

9. Keywords

9.1 bumper guard; diaper stacker; fitted sheet; infant bedding; wall hanging

APPENDIX

(Nonmandatory Information)

XI. RATIONALE

X1.1 *Subsection 6.2*—The intent of this requirement is to limit the maximum thickness of crib bumpers. The CPSC has stated that pillows in the infant's sleeping environment pose a potential suffocation hazard, and therefore bumpers that are "pillow-like" should also be regarded as potentially hazardous. Also, ASTM standards for maximum thickness exist for other padded items infants interact with such as play yard pads. The 2-in. opening of the test fixture limits the overall thickness of bumpers to a thickness that has not been known to present a hazard and allows for excessive fabric, fabric seams, and bumper ties. The 5-lb weight was selected as it was thought that this was a very small force that when applied would allow for bumpers to slide through the gauge during testing and compensate for any excessive fabric, fabric seams, and bumper ties.

X1.2 *Subsection 7.1*—The neck circumference of a 5th percentile 0-3 month old infant is 7.2 in. (183 mm), as stated in January 1986. Based on this measurement, the Infant Bedding and Related Accessories Subcommittee has mandated the maximum allowable length of decorative components attached to any infant bedding or related accessory item to be 7.0 in. (180 mm). The maximum allowable length of attachment result in death or serious injury.

X1.3 *Section 8*—Warning labels for headboard/bumpers, mattress covers, rail covers, crib liners, wall hangings, pillows, fitted sheets, and diaper stackers have been created to warn the consumer of the hazard that can exist if the product is not used as intended. In most cases, the hazards identified in each warning label are substantiated by data from in-depth investigations of accidents or fatalities, or both, involving the use of the aforementioned products. Based on these facts, the word "prevent," instead of "possible," is used in order to stress the importance of compliance with the stated warning. In addition, the word "Warning" is used as the signal word for these warning labels as *ANSI Z535.4* states that "Warning" indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

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