

## 6.16 Stability and overload requirements

### 6.16.1 Stability requirements for ride-on toys and seats

#### 6.16.1.1 General

The clauses for the stability of ride-on toys and seats are indicated in [Table 57](#).

**Table 57 — Clauses related to stability and overload requirements**

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.15 Stability and overload requirements 4.15.1 Stability of ride-on toys and seats	4.15 Toys intended to bear the mass of a child (see A.20)	4.15 Stability and over-load requirements
4.15.1.1 Sideways stability, feet available for stabilization See E.26. 5.12.2 Sideways stability test, feet available for stabilization	4.15.1.4 Stability 8.23.1 Toys intended to bear the mass of a child (see 4.15.1.4, 4.15.3 and 4.15.4) 4.15.3 Rocking horses and similar toys (see A.21) 4.15.4 Toys not propelled by a child	4.15.1 Stability of ride-on toys and toy seats 4.15.2 Sideways stability requirements 8.15 Test for stability of ride-on toys or toy seats
4.15.1.2 Sideways stability, feet unavailable for stabilization 5.12.3 Sideways stability test, feet unavailable for stabilization		
4.15.1.3 Fore and aft stability See E.27. 5.12.4 Fore and aft stability test		4.15.3 Fore and aft stability 8.15 Test for stability of ride-on toys or toy seats

#### 6.16.1.2 Stability testing

See [Table 58](#) for the differences in stability testing between the referenced standards.

Table 58 — Differences of the test method for stability testing

		ISO 8124-1:2014		EN 71-1:2014		ASTM F963:2011																																
Applicable scope		The requirement of stability applies to ride-on toys, rocking toys (e.g. rocking horses) and stationary toys with seats, such as play furniture intended for children under 60 months.		Toys intended to bear the mass of a child, e.g.: — roller skates, inline skates and skateboards intended for children with a body mass of 20 kg or less; — tricycles, cars, hand carts, moon-hoppers and pogo sticks.		The stability requirement apply to the following classes of toys intended for use by children aged 60 months or less: ride-on toys, with three or more load bearing wheels such as wagons; ride-on, action-type toys such as hobby horses, rocking toys (for example, horses, cars); and toy seats.																																
Exemption		Ride-on toys of spherical, cylindrical or other shapes, which do not normally have a stable base (for example toy bicycles and similar toys), are not covered by these requirements.		The stability requirement does not apply to: — roller skates, inline skates and toy skateboards; — toys that by their design do not have a stable base (e.g. pogo sticks, moon hoppers, big balls and soft filled toy animals);  — toys with aligned wheels. Wheels with a spacing of 150 mm or less between the centre of the outermost wheels are considered to be a single wheel.		Ride-on toys of spherical, cylindrical, or other shape that does not normally have a stable base is not covered by these requirements.																																
Sideways stability, feet available for stabilization	Inclined angle	Place the toy on a smooth surface inclined $(10^{+0,5}_{0,0})^{\circ}$		Place the toy on a $(10 \pm 1)^{\circ}$ slope		Place the ride-on toy or toy seat across the slope of a smooth surface inclined $10^{\circ}$																																
	Test load and determination	Age group	Load (kg)	Age group	Load (kg)	<table><tr><th colspan="2">TABLE 6 Weight of 95th Percentile Children (Values Given for Boys or Girls, Whichever is Higher)</th></tr><tr><th>Age, years</th><th>Weight, lb (kg)</th></tr><tr><td>1</td><td>28 (12,6)</td></tr><tr><td>2</td><td>29 (13,2)</td></tr><tr><td>3</td><td>42 (18,9)</td></tr><tr><td>4</td><td>43 (19,7)</td></tr><tr><td>5</td><td>50 (22,6)</td></tr><tr><td>6</td><td>59 (26,6)</td></tr><tr><td>7</td><td>69 (31,2)</td></tr><tr><td>8</td><td>81 (37,0)</td></tr><tr><td>9</td><td>89 (40,4)</td></tr><tr><td>10</td><td>105 (47,9)</td></tr><tr><td>11</td><td>121 (55,0)</td></tr><tr><td>12</td><td>120 (54,7)</td></tr><tr><td>13</td><td>140 (63,6)</td></tr><tr><td>14</td><td>153 (69,6)</td></tr></table>	TABLE 6 Weight of 95th Percentile Children (Values Given for Boys or Girls, Whichever is Higher)		Age, years	Weight, lb (kg)	1	28 (12,6)	2	29 (13,2)	3	42 (18,9)	4	43 (19,7)	5	50 (22,6)	6	59 (26,6)	7	69 (31,2)	8	81 (37,0)	9	89 (40,4)	10	105 (47,9)	11	121 (55,0)	12	120 (54,7)	13	140 (63,6)	14	153 (69,6)
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36 months and over	50 ± 0,5	36 months and over	50 ± 0,5																																			

Table 58 (continued)

		ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011																																										
		<p><b>Exemption:</b> Ride-on toys and stationary toys with seats, where the height of the seat from the ground is less than 27 cm.</p> <p>Observe whether the toy tips over within 1 min after application of the load.</p>	<p><b>Exemption:</b> Toys intended for children of 36 months and over where the feet of the child can provide side-ways stability (i.e. where the legs are unrestricted in their sideways motion) and where the height of the seat is such that a child of the age group for which the toy is intended can reach the ground with both feet when seated (with fore and aft stability remaining).</p> <p>Determine whether the toy tips over</p>	<p>Apply to the seat a static load equal to the weight indicated in above table at the highest age of the age range for which the ride-on toy or toy seat is intended, but not exceeding 60 months. When the highest age of the intended age range falls between two ages listed in above table, the higher of the two shall be chosen.</p> <p><b>Exemption:</b> Those ride-on toys or toy seats in which the height of the seat from the ground is one third, or less than one third, of the height indicated in below table at the lowest age of the age range for which the ride-on toy or toy seat is intended.</p> <table><caption>TABLE 3 Height of Fifth Percentile Children (Values Given for Boys or Girls, Whichever is Lower)</caption><thead><tr><th>Age, years</th><th>Height, in. (cm)</th></tr></thead><tbody><tr><td>1</td><td>27 (69,8)</td></tr><tr><td>2</td><td>29 (74,4)</td></tr><tr><td>3</td><td>33 (85,1)</td></tr><tr><td>4</td><td>37 (93,8)</td></tr><tr><td>5</td><td>40 (100,5)</td></tr></tbody></table> <p>Determine whether the ride-on toy or toy seat tip.</p>	Age, years	Height, in. (cm)	1	27 (69,8)	2	29 (74,4)	3	33 (85,1)	4	37 (93,8)	5	40 (100,5)																														
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Sideways stability, feet unavailable for stabilization	Inclined angle	Place the toy on a smooth surface inclined $(15^{+0,5}_{0,0})^\circ$	Place the toy on a $(10 \pm 1)^\circ$ slope	Place the ride-on toy or toy seat across the slope of a smooth surface inclined $15^\circ$																																										
	Test load	<table><thead><tr><th>Age group</th><th>Load (kg)</th></tr></thead><tbody><tr><td>Under 36 months</td><td><math>25 \pm 0,2</math></td></tr><tr><td>36 months and over</td><td><math>50 \pm 0,5</math></td></tr></tbody></table>	Age group	Load (kg)	Under 36 months	$25 \pm 0,2$	36 months and over	$50 \pm 0,5$	<table><thead><tr><th>Age group</th><th>Load (kg)</th></tr></thead><tbody><tr><td>Under 36 months</td><td><math>25 \pm 0,2</math></td></tr><tr><td>36 months and over</td><td><math>50 \pm 0,5</math></td></tr></tbody></table>	Age group	Load (kg)	Under 36 months	$25 \pm 0,2$	36 months and over	$50 \pm 0,5$	<table><caption>TABLE 6 Weight of 95th Percentile Children (Values Given for Boys or Girls, Whichever is Higher)</caption><thead><tr><th>Age, years</th><th>Weight, lb (kg)</th></tr></thead><tbody><tr><td>1</td><td>28 (12,6)</td></tr><tr><td>2</td><td>29 (13,2)</td></tr><tr><td>3</td><td>42 (18,9)</td></tr><tr><td>4</td><td>43 (19,7)</td></tr><tr><td>5</td><td>50 (22,6)</td></tr><tr><td>6</td><td>59 (26,6)</td></tr><tr><td>7</td><td>69 (31,2)</td></tr><tr><td>8</td><td>81 (37,0)</td></tr><tr><td>9</td><td>89 (40,4)</td></tr><tr><td>10</td><td>105 (47,5)</td></tr><tr><td>11</td><td>121 (55,0)</td></tr><tr><td>12</td><td>120 (54,7)</td></tr><tr><td>13</td><td>140 (63,6)</td></tr><tr><td>14</td><td>153 (69,6)</td></tr></tbody></table>	Age, years	Weight, lb (kg)	1	28 (12,6)	2	29 (13,2)	3	42 (18,9)	4	43 (19,7)	5	50 (22,6)	6	59 (26,6)	7	69 (31,2)	8	81 (37,0)	9	89 (40,4)	10	105 (47,5)	11	121 (55,0)	12	120 (54,7)	13	140 (63,6)	14	153 (69,6)
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		Observe whether the toy tips over within 1 min after application of the load	Determine whether the toy tips over.	<p>Apply to the seat a static load equal to the weight indicated in above table at the highest age of the age range for which the ride-on toy or toy seat is intended, but not exceeding 60 months. When the highest age of the intended age range falls between two ages listed in above table, the higher of the two shall be chosen.</p> <p>Determine whether the ride-on toy or toy seat tip.</p>																																										

Table 58 (continued)

		ISO 8124-1:2014		EN 71-1:2014		ASTM F963:2011																														
Fore and aft stability	Inclined angle	Place the toy on a smooth surface inclined $(15^{+0,5}_{0,0})^{\circ}$		Place the toy on a $(10 \pm 1)^{\circ}$ slope		Place the ride-on toy or toy seat across the slope of a smooth surface inclined $15^{\circ}$																														
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	Observe whether the toy tips over within 1 min after application of the load.		Determine whether the toy tips over.																																	
Toy facing	Ride-on toys shall be tested with the steering mechanism, if any, in the position where the toy is most likely to tip.  Test the toy facing both up and down the slope.  For rocking horses, displace the toy to the limit of its bow.		Place the toy on a slope in the most onerous position with respect to stability.		The stability of ride-on toys is to be tested not only with the steering wheels in a forward position, but also at an angle of $45^{\circ}$ to the left and to the right of the forward position.  Tested the toy both facing down and up the slope.																															
The location of the load	For all ride-on toys, secure the centre of gravity of the load both $(43 \pm 3)$ mm rearward of the frontmost portion of the designated seating area, and $(43 \pm 3)$ mm forward of the rear-most portion of the designated seating area.  If there is no designated seating area, place the load at the least favourable position in which it is reasonable to anticipate that a child will choose to sit or stand.		Load the toy in the most onerous position on its standing or sitting surface.		The centre of gravity of the load for the fore and aft stability test shall be secured both 1,7 in. (43 mm) rearward of the front-most portion of the designated seating area and 1,7 in. (43 mm) forward of the rear-most portion of the designated seating area.  If there is no designated seating area or if there is no designated fore and aft orientation, the load shall be placed 1,7 in. (43 mm) inward towards the geometric centre of the ride-on toy or toy seat from the least favourable position that it is reasonable to anticipate that the child will choose to sit.																															
Test load	Age group	Load (kg)	Age group	Load (kg)	TABLE 6 Weight of 95th Percentile Children (Values Given for Boys or Girls, Whichever is Higher) <table><thead><tr><th>Age, years</th><th>Weight, lb (kg)</th></tr></thead><tbody><tr><td>1</td><td>26 (12.6)</td></tr><tr><td>2</td><td>29 (13.2)</td></tr><tr><td>3</td><td>42 (18.9)</td></tr><tr><td>4</td><td>43 (19.7)</td></tr><tr><td>5</td><td>50 (22.6)</td></tr><tr><td>6</td><td>59 (26.6)</td></tr><tr><td>7</td><td>69 (31.2)</td></tr><tr><td>8</td><td>81 (37.0)</td></tr><tr><td>9</td><td>89 (40.4)</td></tr><tr><td>10</td><td>105 (47.5)</td></tr><tr><td>11</td><td>121 (55.0)</td></tr><tr><td>12</td><td>130 (54.7)</td></tr><tr><td>13</td><td>140 (63.6)</td></tr><tr><td>14</td><td>153 (69.6)</td></tr></tbody></table>	Age, years	Weight, lb (kg)	1	26 (12.6)	2	29 (13.2)	3	42 (18.9)	4	43 (19.7)	5	50 (22.6)	6	59 (26.6)	7	69 (31.2)	8	81 (37.0)	9	89 (40.4)	10	105 (47.5)	11	121 (55.0)	12	130 (54.7)	13	140 (63.6)	14	153 (69.6)	
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	Observe whether the toy tips over within 1 min after application of the load.		Determine whether the toy tips over.																																	

### 6.16.1.3 Toy orientation

Four directions including forward, backward, left and right are to be taken into consideration during the stability test of ISO 8124-1, secure the centre of the gravity of the load both 43 mm rearward of the front-most portion of the designate seating area, and 43 mm frontward of the rear-most portion of the designate seating area.

There are two scenarios addressed in ASTM F963.

- a) For toys with a designated sitting area, the centre of the gravity of the load is place on 43 mm rearward of the front-most portion when doing forward stability testing; and 43 mm frontward of the rear-most portion when doing rearward stability testing. For sideways stability testing, the centre of gravity of the load is place on the geometric centre of the sitting area.
- b) For toys without a designated sitting area or if there is no designated sideways orientation, the centre of gravity is place on 43 mm inward towards the geometric centre of the toy.

Regarding the test addressed in EN 71-1, the load shall be placed in the most onerous position of the toy on its standing or sitting surface. Additional interpretation on how to place the load has been elaborated in CEN/TR 15371-1.

### 6.16.1.4 Sitting surface height

In ISO 8124-1, sideways stability test is not applicable if the sitting surface height is less than 27 cm and children's feet can provide sideways stability.

As for the requirement addressed in ASTM F963, it would be not applicable if the sitting surface height from the ground is 1/3 or less than 1/3 of children's height corresponds to the minimum age of the age group.

### 6.16.1.5 Rocking horses and similar toys

EN 71-1 has specified the limit to the movement on rocking horse and similar toys, it aims to ensure the bow rocker of any bow-mounted rocking horses or other rocking toys shall have a limit to its movement which shall at all times hold the user within the extreme of the bow. There are currently no corresponding requirement in ISO-8124-1 and ASTM F963.

### 6.16.1.6 Mass

EN 71-1:2014, A.49 specifies that a body mass of 20 kg corresponds approximately to the mass (95th percentile) of a child of 3 years, while ISO 8124-1:2014, E.44 specifies that "*A body mass of 20 kg corresponds approximately to the average mass of a child of 5 years.*" In ASTM F963, the mass (95th percentile) of a 3-year old child is 42 lb (18,9 kg).

### 6.16.1.7 Height of load's centre of gravity for requirements off ride-on toys and seats

See [Table 59](#).

**Table 59 — Height of load's centre of gravity**

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Design the load so that the height of its centre of gravity is $(220 \pm 10)$ mm above the seat surface.	Load's centre of gravity is $150^{+10}_{-0}$ mm.	The load shall be designed so that the height of its centre of gravity is $(8,7 \pm 0,5)$ in. $(220 \pm 13)$ mm.

## 6.16.2 Overload requirements for ride-on toys and seats

### 6.16.2.1 General

The clauses for ride-on toys and seats are indicated in [Table 60](#).

**Table 60 — Clauses related to overload requirements for ride-on toys and seats**

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.15.2 Overload requirements for ride-on toys and seats See E.28. 5.12.5 Overload test for ride-on toys and seats 5.24.4 Dynamic strength test for wheeled ride-on toys other than toy scooters	No overload requirement 4.15.1.3 Strength 8.21 Static strength (see 4.15.1.3, 4.15.1.5, 4.15.3, 4.15.4 and A.46) 8.22 Dynamic strength (see 4.15.1.3)	4.15.5 Overload requirements for ride-on toys and toy seats 8.26 Test for overload of ride-on toys and toy seats 4.15.6 Wheeled ride-on toys 8.20 Dynamic strength test for wheeled ride-on toys

### 6.16.2.2 Loading requirements for ride-on toys and seats

The purpose of this requirement is to minimize unexpected hazards which could be caused by a toy that is not capable of withstanding an overload. The relationship between age range of children and test load to be applied are shown in [Table 61](#).

**Table 61 — Loading requirements for ride-on toys and seats**

Age, years	ISO 8124-1:2014 (Overload) kg	EN 71-1:2014 (Static strength test) kg	ASTM F963:2011 (Overload) lb(kg)
1	35 ± 0,3	25 ± 0,2	28 (12,6)*3
2			29 (13,2)*3
3			42 (18,9)*3
4	80 ± 1,0	50 ± 0,5	43 (19,7)*3
5			50 (22,6)*3
6			59 (26,6)*3
7			69 (31,2)*3
8			81 (37,0)*3
9	140 ± 2,0		89 (40,4)*3
10			105 (47,9)*3
11			121 (55,0)*3
12			120 (54,7)*3
13			140 (63,6)*3
14			153 (69,6)*3

Table 61 (continued)

Age, years	ISO 8124-1:2014 (Overload) kg	EN 71-1:2014 (Static strength test) kg	ASTM F963:2011 (Overload) lb(kg)
<b>Note</b>	Conduct the test for overload requirements so that it will be consistent with the advertised mass capacity of the toy, if that mass is higher than the required load according to Table 4.	<b>For scooter:</b> <b>(1)</b> For toy scooters labelled as intended for children with a body mass of 20 kg or less: <b>(50 ± 0,5) kg</b> ; <b>(2)</b> For other toy scooters: <b>(100 ± 1) kg</b> .	When the highest age of the intended age range falls between two ages listed at column for ASTM F963 in this Table, the higher of the two shall be chosen.
<b>Test method</b>	Load the toy on its standing or sitting surface with the appropriate mass in accordance with Table 4.  Determine whether the toy collapses such that it does not conform to the relevant requirements.	Load the toy in the most onerous position with a mass of (50 ± 0,5) kg on its standing or sitting surface for 5 min.  For toys labelled as not suitable for children of 36 months and over, load the toy with a mass of (25 ± 0,2) kg.	Apply a static load(s) that is equal to the weight as determined by the criteria above. The load(s) shall be applied so that it is as close as possible to the geometric centre of the designated seating or standing area(s). If there is no designated seating or standing area(s), the load shall be placed at the least favourable position that it is reasonable to anticipate that the child will choose to sit or stand. Observe whether the toy collapses within 1 min after application of the static load.

### 6.16.2.3 Dynamic strength test

All three standards have dynamic test. In EN 71-1, a test load with articulated arms is to be used when the toy is equipped with steering wheel or handlebars. In ISO 8124-1, the test load with articulated arms is only to be used when conducting the dynamic strength test for toy scooters. There is no corresponding requirement in ASTM F963. See [Table 62](#).

**Table 62 — Differences of the test method for dynamic strength test**

		ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011																														
Dynamic strength test	Test method	Wheeled ride-on toys other than toy scooters.  Load the toy for 5 min.  Drive the toy three times at a speed of (2 ± 0,2) m/s into a non-resilient step with a height of 50 mm.	A load is secured to the toy, and articulated arms with the elbow joints in a downward position are attached to the steering wheel or handlebars if the toy is so equipped. The toy is driven three times into a non-resilient step.	Load the toy for 5 min in the most onerous position with the appropriate mass in accordance with this Table on its standing or sitting surface. Secure the load to the toy in a position corresponding to the normal use of the toy. Drive the toy three times at a speed of 6,6 ft/s (2 m/s) ± 0,7 ft/s (0,2 m/s) into a nonresilient step with a height of 2 in. (50 mm).																														
	Test load	Wheeled ride-on toys other than toy scooters	For toys intended for children of 36 months and over:	<table><caption>TABLE 6 Weight of 95th Percentile Children (Values Given for Boys or Girls, Whichever is Higher)</caption><thead><tr><th>Age, years</th><th>Weight, lb (kg)</th></tr></thead><tbody><tr><td>1</td><td>28 (12.6)</td></tr><tr><td>2</td><td>29 (13.2)</td></tr><tr><td>3</td><td>42 (18.9)</td></tr><tr><td>4</td><td>43 (19.7)</td></tr><tr><td>5</td><td>50 (22.6)</td></tr><tr><td>6</td><td>59 (26.6)</td></tr><tr><td>7</td><td>69 (31.2)</td></tr><tr><td>8</td><td>81 (37.0)</td></tr><tr><td>9</td><td>89 (40.4)</td></tr><tr><td>10</td><td>105 (47.9)</td></tr><tr><td>11</td><td>121 (55.0)</td></tr><tr><td>12</td><td>120 (54.7)</td></tr><tr><td>13</td><td>140 (63.6)</td></tr><tr><td>14</td><td>153 (69.6)</td></tr></tbody></table>	Age, years	Weight, lb (kg)	1	28 (12.6)	2	29 (13.2)	3	42 (18.9)	4	43 (19.7)	5	50 (22.6)	6	59 (26.6)	7	69 (31.2)	8	81 (37.0)	9	89 (40.4)	10	105 (47.9)	11	121 (55.0)	12	120 (54.7)	13	140 (63.6)	14	153 (69.6)
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<table><tr><th>Age group</th><th>Load (kg)</th></tr><tr><td>Under 36 months</td><td>25 ± 0,2 kg</td></tr><tr><td>36 months and over</td><td>50 ± 0,5 kg</td></tr></table>	Age group	Load (kg)	Under 36 months	25 ± 0,2 kg	36 months and over	50 ± 0,5 kg	54,5 kg																											
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For toys labelled as unsuitable for children of 36 months and over:	For toys labelled as unsuitable for children of 36 months and over:																																	
29,5 kg																																		
<p><b>For scooter:</b></p> <p>For toy scooters intended for users up to 50 kg:</p> <p><b>54,5 kg;</b></p> <p>For toy scooters intended for users of 20 kg or less:</p> <p><b>29,5 kg</b></p>																																		

### 6.16.3 Stability of stationary floor toys

The clauses for the stability of stationary floor toys are indicated in [Table 63](#).

**Table 63 — Clauses related to stability of stationary floor toys**

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.15.3 Stability of stationary floor toys See E.29. 5.12.6 Stability test of stationary floor toys	4.16 Heavy immobile toys 8.23.2 Heavy immobile toys (see 4.16)	4.15.4 Stability of stationary floor toys

[Table 64](#) illustrates a comparison of stability test for stationary floor toys.



**Table 64 — Comparison of stability test for stationary floor toys**

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
<b>Scope</b>	Stationary floor toys greater than 760 mm in height and weighing more than 4,5 kg.	Immobile toys with a mass of 4,5 kg or more and intended to rest on the floor but not to bear the mass of a child.	Stationary floor toys of greater than 30 in. (760 mm) in height and weighing more than 10 lb (4,5 kg).
<b>Angle of slope</b>	Place the toy on a smooth surface inclined $(10 \pm 1)^\circ$ .	Place the toy in the most onerous position on a $(5 \pm 1)^\circ$ slope.	Placed on a $10^\circ$ incline.
<b>Test duration</b>	Observe whether the toy tips over within 1 min.	—	—

## 6.17 Enclosures

### 6.17.1 General

The clauses for enclosures are indicated in [Table 65](#).

**Table 65 — Clauses related to enclosures**

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.16 Enclosures See E.30. 4.16.1 Ventilation	4.14 Enclosures 4.14.1 Toys which a child can enter (see A.18) 4.14.1 a)	4.16 Confined spaces 4.16.1 Ventilation
4.16.2 Closures 4.16.2.1 Lids, doors and similar devices 4.16.2.2 Lid support for toy chests and similar toys 5.13 Test for closures and toy chest lids	4.14.1 b) 4.14.1 c) 8.31 Toy chest lids	4.16.2 Closures
4.16.3 Toys that enclose the head	4.14.2 Masks and helmets (see A.19) 4.14.2 a)	4.16.3 Toys that enclose the head

NOTE Toy chests are not covered by ASTM F963. They are considered as children's furniture and have their own set of safety requirements that are already covered by Consumer Safety Specification F834. CPSC has "ordered" that Toy Chests are re-inserted in the next version of ASTM F963.

### 6.17.2 Impermeable material

In ISO 8124-1 and ASTM F963, any toy, made of impermeable material and having a door or lid, which encloses a continuous volume greater than 0,03 m<sup>3</sup> and in which all internal dimensions are 150 mm or more, shall provide means for breathing by the incorporation of unobstructed ventilation openings. Compared with ISO 8124-1 and ASTM F963, EN 71-1 does not mention impermeable material in this requirement.

### 6.17.3 Ventilation

All the three standards have similar requirements for toys that enclosed the head, the main differences are shown in [Table 66](#).

**Table 66 — Differences in requirements of ventilation**

	<b>ISO 8124-1:2014</b>	<b>EN 71-1:2014</b>	<b>ASTM F963:2011</b>
<b>Requirements of ventilation</b>	Toys that enclose the head and which are made of impermeable material, shall provide ventilation through at least two holes or through any equivalent single ventilation area.	Toys that fully enclose the head and which are made of impermeable material shall provide ventilation through at least two holes or through any equivalent single ventilation area.	Toys that enclose the head and which are made of impermeable material shall provide two holes for breathing.
<b>Location of ventilation</b>	Ventilation areas should be close to the mouth and nose area.	There is no requirement on the location of ventilation area.	There is no requirement for equivalent single ventilation area.

#### 6.17.4 Closures

- a) In ISO 8124-1 and ASTM F963, closures shall be a type which can be opened with a force of less than  $(45 \pm 1,3)$  N. The force shall be applied in an outward direction to the inside of the closed closure, perpendicular to the plane of the closure and anywhere within 25 mm from the geometric centre of the closure. In EN 71-1, for toys having a door, lid or similar device, it shall be possible to open the door, lid or similar device by applying a force of 50 N or less from the inside.
- b) In ISO 8124-1, toy chests shall be accompanied by instructions for proper assembly and maintenance in sufficient detail to describe the correct assembly of components, the resulting hazard if the lid support device is not installed, and a description of how to determine whether the support is working properly (see ISO 8124-1:2014, B.3.4). In EN 71-1, toys chests with vertically opening hinged lids shall be accompanied by instructions for proper assembly and maintenance, the standard does not state the details of what kind of information are included in the instructions.
- c) In ISO 8124-1 and EN 71-1, the requirements on enclosure notably preclude the use of buttons, zips and similar fastenings on doors, lids or similar devices. ASTM F963 has no relevant statement. However, in ASTM F963, any enclosure toys made of impermeable material, the closure shall be of a type that can be opened with a force of 10 lbf (45 N) or less when treated as follows.

With the closure in a closed position, apply the force in an outward direction to the inside of the closure perpendicular to the plane of the closure and anywhere within 1 in. (25 mm) from the geometric centre of the closure.

#### 6.18 Simulated protective equipment, such as helmets, hats and goggles

The clauses for simulated protective equipment are indicated in [Table 67](#).

**Table 67 — Clauses related to simulated protective equipment**

<b>ISO 8124-1:2014</b>	<b>EN 71-1:2014</b>	<b>ASTM F963:2011</b>
4.17 Simulated protective equipment, such as helmets, hats and goggles See E.31. 5.14 Impact test for toys that cover the face B.2.11 Simulated protective equipment	4.14.2 Masks and helmets 4.14.2 b) 4.14.2 c) 7.8 Imitation protective masks and helmets (see 4.14.2 and A.19)	4.19 Simulated Protective Devices (such as helmets, hats, and goggles) 8.7.4 Impact test for toys that cover the face 5.9 Simulated protective devices

In EN 71-1, simulated protective equipment made of rigid material shall subject to the impact test (round disc weight 1 kg, diameter 80 mm, drop from height of 100 mm from the surface of toy). In ISO 8124-1 and ASTM F963, simulate protective equipment that covered the face (including toys with