

DIN EN 71-1:2014-07 (E)

Safety of toys - Part 1: Mechanical and physical properties (includes Amendment A3:2014)

Contents

	Page
Foreword	8
Introduction	10
1 Scope (see A.2)	11
2 Normative references	13
3 Terms and definitions	14
4 General requirements	22
4.1 Material cleanliness (see A.3)	22
4.2 Assembly (see A.4)	23
4.3 Flexible plastic sheeting (see A.5 and A.16)	23
4.4 Toy bags	23
4.5 Glass (see 5.7 and A.6)	23
4.6 Expanding materials (see A.7)	23
4.7 Edges (see A.8)	24
4.8 Points and metallic wires (see A.9)	24
4.9 Protruding parts (see A.10)	25
4.10 Parts moving against each other	25
4.10.1 Folding and sliding mechanisms (see A.11)	25
4.10.2 Driving mechanisms (see A.12)	27
4.10.3 Hinges (see A.13)	27
4.10.4 Springs (see A.14)	27
4.11 Mouth-actuated toys and other toys intended to be put in the mouth (see A.15)	28
4.12 Balloons (see 4.3 and A.16)	28
4.13 Cords of toy kites and other flying toys (see A.17)	28
4.14 Enclosures	28
4.14.1 Toys which a child can enter (see A.18)	28
4.14.2 Masks and helmets (see A.19)	29
4.15 Toys intended to bear the mass of a child (see A.20)	30
4.15.1 Toys propelled by a child or by other means	30
4.15.2 Toy bicycles (see A.20)	34
4.15.3 Rocking horses and similar toys (see A.21)	35
4.15.4 Toys not propelled by a child	36
4.15.5 Toy scooters (see A.49)	36
4.16 Heavy immobile toys	38
4.17 Projectiles (see A.22)	38
4.17.1 General	38
4.17.2 Projectile toys without stored energy	39
4.17.3 Projectile toys with stored energy	39
4.17.4 Bows and arrows	39
4.18 Aquatic toys and inflatable toys (see A.23)	39
4.19 Percussion caps specifically designed for use in toys and toys using percussion caps (see A.24)	40
4.20 Acoustics (see A.25)	40
4.20.1 Exposure categories for time-averaged sound pressure levels	40
4.20.2 Emission sound pressure level limits	41
4.21 Toys containing a non-electrical heat source	45
4.22 Small balls (see 5.10 and A.48)	46

4.23	Magnets (see A.51)	46
4.23.1	General	46
4.23.2	Toys other than magnetic/electrical experimental sets intended for children over 8 years	46
4.23.3	Magnetic/electrical experimental sets intended for children over 8 years	47
4.24	Yo-yo balls (see A.52)	47
4.25	Toys attached to food (see A.55)	47
5	Toys intended for children under 36 months	48
5.1	General requirements (see A.26)	48
5.2	Soft-filled toys and soft-filled parts of a toy (see A.27)	49
5.3	Plastic sheeting (see A.28)	49
5.4	Cords, chains and electrical cables in toys (see A.29)	49
5.5	Liquid-filled toys (see A.30)	51
5.6	Speed limitation of electrically-driven ride-on toys	51
5.7	Glass and porcelain (see 4.5 and A.6)	51
5.8	Shape and size of certain toys (see A.31)	51
5.9	Toys comprising monofilament fibres (see A.32)	52
5.10	Small balls (see also 4.22 and A.48)	52
5.11	Play figures	52
5.12	Hemispheric-shaped toys (see A.50)	53
5.13	Suction cups (see A.54)	55
5.14	Straps intended to be worn fully or partially around the neck (see A.53)	55
6	Packaging (see A.56)	55
7	Warnings, markings and instructions for use (see A.33)	56
7.1	General	57
7.2	Toys not intended for children under 36 months (see 4.22 and A.34)	57
7.3	Latex balloons (see 4.12 and A.16)	59
7.4	Aquatic toys (see 4.18 and A.23)	59
7.5	Functional toys (see A.35)	59
7.6	Hazardous sharp functional edges and points (see 4.7 and 4.8)	59
7.7	Projectiles (see 4.17.3 c) and 4.17.4 c))	59
7.7.1	Toys with projectiles which are able to discharge an object other than that provided with the toy	59
7.7.2	Toys capable of discharging a projectile with a kinetic energy greater than 0,08 J	60
7.8	Imitation protective masks and helmets (see 4.14.2 and A.19)	60
7.9	Toy kites (see 4.13)	60
7.10	Roller skates, inline skates, skateboards and certain other ride-on toys (see 4.15.1.2 and A.20)	60
7.10.1	Roller skates, inline skates and skateboards	60
7.10.2	Ride-on toys without a braking device	60
7.10.3	Electrically-driven ride-on toys	60
7.10.4	Instructions for use	61
7.11	Toys intended to be attached to or strung across a cradle, cot, or perambulator (see 5.4 f))	61
7.12	Liquid-filled teething	61
7.13	Percussion caps specifically designed for use in toys (see 4.19)	61
7.14	Acoustics (see 4.19 and 4.20)	61
7.15	Toy bicycles (see 4.15.2.2)	62
7.16	Toys intended to bear the mass of a child (see 4.15.1.2, 4.15.2.2, 4.15.3 and 4.15.4)	62
7.17	Toys comprising monofilament fibres (see 5.9)	62
7.18	Toy scooters (see 4.15.5.2)	62
7.19	Rocking horses and similar toys (see 4.15.3 and A.21)	63
7.20	Magnetic/electrical experimental sets (see 4.23.3 and A.51)	63
7.21	Toys with electrical cables exceeding 300 mm in length (see 5.4 i))	63
7.22	Toys with cords or chains intended for children of 18 months and over but under 36 months (see 5.4 b), 5.4 c) and 5.4 g))	63
8	Test methods	63
8.1	General requirements for testing	63
8.2	Small parts cylinder (see 4.6, 4.11, 4.18, 4.23.2, 4.23.3, 4.25, 5.1, 5.2 and A.36)	64

8.3	Torque test (see 4.6, 4.11, 4.14.2, 4.17, 4.18, 4.22, 4.23.2, 4.25, 5.1, 5.10, 5.12, 5.13 and Clause 6)	64
8.4	Tension test (see A.37)	65
8.4.1	Apparatus	65
8.4.2	Procedure	65
8.5	Drop test (see 4.5, 4.6, 4.10.2, 4.14.2, 4.22, 4.23.2, 4.25, 5.1, 5.10, 5.12 and 5.13)	67
8.6	Tip over test (see 4.10.2, 4.22, 4.23.2, 5.1, 5.10, 5.12 and 5.13)	67
8.7	Impact test (see 4.5, 4.6, 4.10.2, 4.14.2, 4.22, 4.23.2, 4.25, 5.1, 5.10, 5.12, 5.13 and A.38)	68
8.8	Compression test (see 4.6, 4.14.2, 4.22, 4.23.2, 4.25, 5.1, 5.10, 5.12, 5.13 and A.39)	68
8.9	Soaking test (see 4.11, 4.23.2, 5.1, 5.10 and 5.12)	68
8.10	Accessibility of a part or component (see 4.5, 4.7, 4.8, 4.10.2, 4.15.1.3, 4.21, 5.2 and 5.7)	69
8.10.1	Principle	69
8.10.2	Apparatus	69
8.10.3	Procedure	69
8.11	Sharpness of edges (see 4.5, 4.7, 4.9, 4.10.2, 4.14.2, 4.15.1.3 and 5.1)	70
8.11.1	Principle	70
8.11.2	Apparatus	71
8.11.3	Procedure	72
8.12	Sharpness of points (see 4.5, 4.8, 4.9, 4.10.2, 4.14.2, 4.15.1.3, 5.1 and A.40)	72
8.12.1	Principle	72
8.12.2	Apparatus	72
8.12.3	Procedure	73
8.13	Flexibility of metallic wires (see 4.8 and A.41)	74
8.13.1	General	74
8.13.2	Metallic wires and other metallic components intended to be bent	74
8.13.3	Metallic wires likely to be bent	74
8.14	Expanding materials (see 4.6)	75
8.15	Leakage of liquid-filled toys (see 5.5 and A.42)	75
8.16	Geometric shape of certain toys (see 5.8, 5.11 and A.43)	75
8.17	Durability of mouth-actuated toys (see 4.11 and A.44)	76
8.17.1	Mouth-actuated projectile toys	76
8.17.2	Other mouth-actuated toys	76
8.18	Folding or sliding mechanisms (see 4.10.1 and A.45)	77
8.18.1	Loads	77
8.18.2	Toy pushchairs and perambulators	77
8.18.3	Other collapsible toys (see 4.10.1 c))	78
8.19	Electric resistivity of cords (see 4.13)	78
8.20	Cords cross-sectional dimension (see 5.4 a))	78
8.21	Static strength (see 4.15.1.3, 4.15.1.5, 4.15.3, 4.15.4 and A.46)	79
8.22	Dynamic strength (see 4.15.1.3)	80
8.22.1	Principle	80
8.22.2	Loads	80
8.22.3	Procedure	81
8.23	Stability	83
8.23.1	Toys intended to bear the mass of a child (see 4.15.1.4, 4.15.3 and 4.15.4)	83
8.23.2	Heavy immobile toys (see 4.16)	83
8.24	Determination of kinetic energy (see A.47)	83
8.24.1	Kinetic energy of projectiles (see 4.17.3)	83
8.24.2	Kinetic energy of bows and arrows (see 4.17.4)	84
8.25	Plastic sheeting	84
8.25.1	Thickness (see 4.3, 5.3 and Clause 6)	84
8.25.2	Adhesion (see 5.3)	84
8.26	Brake performance	84
8.26.1	Brake performance for certain ride-on toys (see 4.15.1.5)	84
8.26.2	Brake performance for toy bicycles (see 4.15.2.3)	85
8.26.3	Brake performance for toy scooters (see 4.15.5.5)	85
8.27	Strength of toy scooter steering tubes (see 4.15.5.3)	86
8.27.1	Resistance to downward forces	86
8.27.2	Resistance to upward forces	87
8.28	Determination of emission sound pressure levels (see 4.20)	87
8.28.1	General	87

8.28.2	Test procedures	91
8.29	Determination of maximum design speed of electrically-driven ride-on toys (see 4.15.1.2, 4.15.1.5, 4.15.1.8 and 5.6)	100
8.30	Measurement of temperature rises (see 4.21)	101
8.31	Toy chest lids (see 4.14.1 c))	101
8.31.1	General	101
8.31.2	Lid support	101
8.31.3	Durability test for vertically opening hinged lids	101
8.32	Small balls and suction cups test (see 4.17, 4.22, 4.25, 5.10 and 5.13)	101
8.32.1	Small balls and suction cups (see Clause 6)	101
8.32.2	Small balls attached to a toy by a cord	102
8.33	Test for play figures (see 5.11)	103
8.34	Tension test for magnets (see 4.23.2 and A.51)	103
8.34.1	General	103
8.34.2	Toys that contain more than one magnet or magnetic component	103
8.34.3	Toys that contain one magnet only	104
8.35	Magnetic flux index (see 4.23.2 and 4.23.3)	104
8.35.1	General	104
8.35.2	Apparatus	104
8.35.3	Procedure	105
8.35.4	Calculation of magnetic flux index	105
8.36	Perimeter of cords and chains (see 5.4 c) and 5.4 d))	106
8.36.1	Test equipment	106
8.36.2	Test procedures	107
8.37	Yo-yo balls measurements (see 4.24)	110
8.37.1	Measurement of initial length l_0	110
8.37.2	Measurement of elastic constant k	111
8.38	Breakaway feature separation test (see 5.4 b), 5.4 c) and 5.14)	112
8.39	Self-retracting cords (see 5.4 e))	113
8.40	Length of cords, chains and electrical cables (see 5.4 b), 5.4 c), 5.4 g), 5.4 h) and 5.4 i)) .	113

Annex A (informative) Background and rationale for this European Standard	114
---	-----

A.1	General	114
A.2	Scope (see Clause 1)	114
A.3	Material cleanliness (see 4.1)	114
A.4	Assembly (see 4.2)	115
A.5	Flexible plastic sheeting (see 4.3)	115
A.6	Glass (see 4.5 and 5.7)	115
A.7	Expanding materials (see 4.6)	115
A.8	Edges (see 4.7)	115
A.9	Points and metallic wires (see 4.8)	116
A.10	Protruding parts (see 4.9)	116
A.11	Folding and sliding mechanisms (see 4.10.1)	117
A.12	Driving mechanisms (see 4.10.2)	117
A.13	Hinges (see 4.10.3)	117
A.14	Springs (see 4.10.4)	118
A.15	Mouth-actuated toys and other toys intended to be put in the mouth (see 4.11)	118
A.16	Balloons (see 4.3, 4.12 and 7.3)	118
A.17	Cords of toy kites (see 4.13)	119
A.18	Toys which a child can enter (see 4.14.1)	119
A.19	Masks and helmets (see 4.14.2 and 7.8)	119
A.20	Toys intended to bear the mass of a child (see 4.15 and 7.10)	119
A.21	Rocking horses and similar toys (see 4.15.3)	120
A.22	Projectiles (see 4.17)	121
A.23	Aquatic toys and inflatable toys (see 4.18 and 7.4)	121
A.24	Percussion caps specifically designed for use in toys and toys using percussion caps (see 4.19)	121
A.25	Acoustics (see 4.20)	122
A.26	General requirements for toys intended for children under 36 months (see 5.1)	125
A.27	Soft-filled toys and soft-filled parts of a toy (see 5.2)	126
A.28	Adhesion of plastic sheeting (see 5.3)	126

A.29	Cords and chains in toys (see 5.4)	126
A.30	Liquid-filled toys (see 5.5 and A.42)	129
A.31	Shape and size of certain toys (see 5.8 and A.43)	129
A.32	Toys comprising monofilament fibres (see 5.9)	129
A.33	Warnings, markings and instructions for use (see 7.1)	129
A.34	Warning for toys not intended for children under 36 months (see 7.2)	131
A.35	Warnings in connection with functional toys (see 7.5)	131
A.36	Small parts cylinder (see 8.2)	131
A.37	Tension test (see 8.4)	131
A.38	Impact test (see 8.7)	131
A.39	Compression test (see 8.8)	131
A.40	Sharpness of points (see 8.12)	131
A.41	Flexibility of metallic wires (see 8.13)	132
A.42	Leakage of liquid-filled teethers (see 8.15 and A.30)	132
A.43	Geometric shape of certain toys (see 8.16 and A.31)	132
A.44	Durability of mouth-actuated toys (see 8.17)	132
A.45	Folding or sliding mechanisms (see 8.18)	132
A.46	Static strength (see 8.21)	132
A.47	Kinetic energy of projectiles, bows and arrows (see 8.24)	132
A.48	Small balls (see 4.22 and 5.10)	133
A.49	Toy scooters (see 4.15.5)	134
A.50	Hemispheric-shaped toys (see 5.12)	134
A.51	Magnets (see 4.23)	135
A.52	Yo-yo balls (see 4.24)	137
A.53	Straps intended to be worn fully or partially around the neck (see 5.14)	140
A.54	Suction cups (see 5.13)	140
A.55	Toys attached to food (see 4.25)	140
A.56	Packaging (see Clause 6)	141
	Annex B (informative) Significant technical changes between this European Standard and the previous version	143
	Annex ZA (informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives	145
	Bibliography	147