

DIN EN 71-1:2006-01 (E)

Safety of toys - Part 1: Mechanical and physical properties

Contents		Page
Foreword		6
Introduction		7
1	Scope (see A.2)	8
2	Normative references	9
3	Terms and definitions	9
4	General requirements	14
4.1	Material (see A.3)	14
4.2	Assembly (see A.4)	14
4.3	Flexible plastic sheeting (see A.5 and A.16)	15
4.4	Toy bags	15
4.5	Glass (see 5.7 and A.6)	15
4.6	Expanding materials (see A.7)	15
4.7	Edges (see A.8)	15
4.8	Points and wires (see A.9)	16
4.9	Protruding parts (see A.10)	16
4.10	Parts moving against each other	16
4.10.1	Folding and sliding mechanisms (see A.11)	16
4.10.2	Driving mechanisms (see A.12)	18
4.10.3	Hinges (see A.13)	18
4.10.4	Springs (see A.14)	18
4.11	Mouth-actuated toys (see A.15)	19
4.12	Balloons (see 4.3 and A.16)	19
4.13	Cords of toy kites and other flying toys (see A.17)	19
4.14	Enclosures	19
4.14.1	Toys which a child can enter (see A.18)	19
4.14.2	Masks and helmets (see A.19)	20
4.15	Toys intended to bear the mass of a child (see A.20)	21
4.15.1	Toys propelled by a child or by other means	21
4.15.2	Free-wheeling toy bicycles (see A.20)	23
4.15.3	Rocking horses and similar toys (see A.21)	24
4.15.4	Toys not propelled by a child	25
4.15.5	Toy scooters (see A.49)	25
4.16	Heavy immobile toys	26
4.17	Projectiles (see A.22)	26
4.17.1	General	26
4.17.2	Projectile toys without stored energy	27
4.17.3	Projectile toys with stored energy	27
4.17.4	Bows and arrows	27
4.18	Aquatic toys (see A.23)	28
4.19	Percussion caps specifically designed for use in toys (see A.24)	28
4.20	Acoustics (see A.25)	28
4.21	Toys containing a heat source	29
4.22	Small balls (see 5.10 and A.48)	29
5	Toys intended for children under 36 months	29
5.1	General requirements (see A.26)	29
5.2	Filling materials (see A.27)	30

5.3	Plastic sheeting (see A.28)	30
5.4	Cords on toys (see A.29)	31
5.5	Liquid-filled toys (see A.30)	31
5.6	Speed limitation of electrically driven toys	32
5.7	Glass and porcelain (see 4.5 and A.6)	32
5.8	Shape and size of certain toys (see A.31)	32
5.9	Toys comprising monofilament fibres (see A.32)	32
5.10	Small balls (see also 4.22 and A.48)	32
5.11	Play figures	33
5.12	Hemispheric-shaped toys (see A.50)	33
5.13	Suction cups	35
6	Packaging	36
7	Warnings and instructions for use (see A.33)	36
7.1	General	36
7.2	Toys not intended for children under 36 months (see A.34)	36
7.3	Latex balloons (see 4.12 and A.16)	37
7.4	Aquatic toys (see 4.18 and A.23)	37
7.5	Functional toys (see A.35)	37
7.6	Hazardous sharp functional edges and points (see 4.7 and 4.8)	37
7.7	Projectiles (see 4.17.3 c) and 4.17.4 c))	37
7.8	Imitation protective masks and helmets (see 4.14.2 and A.19)	37
7.9	Toy kites (see 4.13)	38
7.10	Roller skates, inline skates and toy skateboards (see 4.15.1.2)	38
7.11	Toys intended to be strung across a cradle, cot, or perambulator (see 5.4 e))	38
7.12	Liquid-filled teething (see 5.5)	38
7.13	Percussion caps specifically designed for use in toys (see 4.19)	38
7.14	Acoustics (see 4.20 f))	38
7.15	Toy bicycles (see 4.15.2.2)	38
7.16	Toys intended to bear the mass of a child (see 4.10.1 and 4.15.1.2)	39
7.17	Toys comprising monofilament fibres (see 5.9)	39
7.18	Small balls (see 4.22)	39
7.19	Toy scooters (see 4.15.5.2)	39
8	Test methods	40
8.1	General requirements for testing	40
8.2	Small parts cylinder (see 4.6, 4.11, 4.18, 5.1, 5.2 and A.36)	40
8.3	Torque test (see 4.6, 4.11, 4.14.2, 4.18, 4.22, 5.1, 5.10, 5.12 and 5.13)	40
8.4	Tension test (see A.37)	41
8.4.1	Apparatus	41
8.4.2	Procedure	41
8.5	Drop test (see 4.6, 4.10.2, 4.14.2, 4.22, 5.1, 5.10, 5.12 and 5.13)	42
8.6	Tip over test (see 4.10.2, 4.22, 5.1, 5.10 and 5.12)	42
8.7	Impact test (see 4.6, 4.10.2, 4.14.2, 4.22, 5.1, 5.10, 5.12, 5.13 and A.38)	43
8.8	Compression test (see 4.6, 4.14.2, 4.22, 5.1, 5.10, 5.12, 5.13 and A.39)	43
8.9	Soaking test (see 4.11, 5.1, 5.10 and 5.12)	43
8.10	Accessibility of a part or component (see 4.5, 4.7, 4.8, 4.10.2, 4.10.4, 4.15.1.3, 4.21, 5.1 and 5.7)	43
8.10.1	Principle	43
8.10.2	Apparatus	43
8.10.3	Procedure	43
8.11	Sharpness of edges (see 4.7, 4.9, 4.10.2, 4.14.2, 4.15.1.3 and 5.1)	46
8.11.1	Principle	46
8.11.2	Apparatus	46
8.11.3	Procedure	47
8.12	Sharpness of points (see 4.8, 4.10.2, 4.14.2, 4.15.1.3, 5.1 and A.40)	47
8.12.1	Principle	47
8.12.2	Apparatus	47
8.12.3	Procedure	48
8.13	Flexibility of wires (see 4.8 and A.41)	49
8.14	Expanding materials (see 4.6)	49

8.15	Leakage of liquid-filled toys (see 5.5 and A.42)	50
8.16	Geometric shape of certain toys (see 5.8, 5.11 and A.43)	50
8.17	Durability of mouth-actuated toys (see 4.11 c) and A.44)	51
8.18	Folding or sliding mechanisms (see 4.10.1 and A.45)	51
8.18.1	Loads	51
8.18.2	Toy pushchairs and perambulators	52
8.18.3	Other collapsible toys (see 4.10.1 c))	53
8.19	Electric resistivity of cords (see 4.13)	53
8.20	Cord thickness (see 5.4)	53
8.21	Static strength (see 4.15.1.3, 4.15.1.5, 4.15.3, 4.15.4 and A.46)	53
8.22	Dynamic strength (see 4.15.1.3)	54
8.22.1	Principle	54
8.22.2	Loads	54
8.22.3	Procedure	55
8.23	Stability	57
8.23.1	Toys intended to bear the mass of a child (see 4.15.1.4, 4.15.3 and 4.15.4)	57
8.23.2	Heavy immobile toys (see 4.16)	57
8.24	Determination of kinetic energy (see A.47)	57
8.24.1	Kinetic energy of projectiles (see 4.17.3)	57
8.24.2	Kinetic energy of bows and arrows (see 4.17.4)	58
8.25	Plastic sheeting	58
8.25.1	Thickness (see 4.3, 5.3 and 6)	58
8.25.2	Adhesion (see 5.3)	58
8.26	Brake performance	58
8.26.1	Brake performance for toys other than toy bicycles (see 4.15.1.5)	58
8.26.2	Brake performance for toy bicycles (see 4.15.2.4)	59
8.26.3	Brake performance for toy scooters (see 4.15.5.5)	59
8.27	Strength of toy scooter steering tubes (see 4.15.5.3)	60
8.27.1	Resistance to downward forces	60
8.27.2	Resistance to upward forces	61
8.28	Determination of emission sound pressure levels (see 4.20)	61
8.28.1	Installation and mounting conditions	61
8.28.2	Measurement procedure	63
8.29	Determination of speed of electrically driven ride-on toys (see 5.6)	67
8.30	Measurement of temperature rises (see 4.21)	67
8.31	Toy chest lids (see 4.14.1 c))	67
8.31.1	Lid support	67
8.31.2	Durability test for vertically opening hinged lids	68
8.32	Small balls and suction cups test (see 4.22, 5.10 and 5.13)	68
8.33	Test for play figures (see 5.11)	68
Annex A (informative) Background and rationale for this document		69
A.1	General	69
A.2	Scope (see 1)	69
A.3	Material (see 4.1)	70
A.4	Assembly (see 4.2)	70
A.5	Flexible plastic sheeting (see 4.3)	70
A.6	Glass (see 4.5 and 5.7)	70
A.7	Expanding materials (see 4.6)	70
A.8	Edges (see 4.7)	71
A.9	Points and wires (see 4.8)	71
A.10	Protruding parts (see 4.9)	71
A.11	Folding and sliding mechanisms (see 4.10.1)	72
A.12	Driving mechanisms (see 4.10.2)	72
A.13	Hinges (see 4.10.3)	72
A.14	Springs (see 4.10.4)	73
A.15	Mouth-actuated toys (see 4.11)	73
A.16	Balloons (see 4.3, 4.12 and 7.3)	73
A.17	Cords of toy kites (see 4.13)	73
A.18	Toys which a child can enter (see 4.14.1)	74
A.19	Masks and helmets (see 4.14.2 and 7.8)	74

A.20	Toys intended to bear the mass of a child (see 4.15)	74
A.21	Rocking horses and similar toys (see 4.15.3)	75
A.22	Projectiles (see 4.17)	75
A.23	Aquatic toys (see 4.18 and 7.4)	75
A.24	Percussion caps specifically designed for use in toys (see 4.19)	76
A.25	Acoustics (see 4.20)	76
A.26	General requirements for toys intended for children under 36 months (see 5.1)	76
A.27	Filling materials (see 5.2)	77
A.28	Plastic sheeting (see 5.3)	77
A.29	Cords on toys (see 5.4)	77
A.30	Liquid-filled toys (see 5.5 and A.42)	77
A.31	Shape and size of certain toys (see 5.8 and A.43)	78
A.32	Toys comprising monofilament fibres (see 5.9)	78
A.33	Warnings and instructions for use (see 7.1)	78
A.34	Warning for toys not intended for children under 36 months (see 7.2)	78
A.35	Warnings in connection with functional toys (see 7.5)	78
A.36	Small parts cylinder (see 8.2)	79
A.37	Tension test (see 8.4)	79
A.38	Impact test (see 8.7)	79
A.39	Compression test (see 8.8)	79
A.40	Sharpness of points (see 8.12)	79
A.41	Flexibility of wires (see 8.13)	79
A.42	Leakage of liquid-filled teethingers (see 8.15 and A.30)	79
A.43	Geometric shape of certain toys (see 8.16 and A.31)	79
A.44	Durability of mouth-actuated toys (see 8.17)	80
A.45	Folding or sliding mechanisms (see 8.18)	80
A.46	Static strength (see 8.21)	80
A.47	Kinetic energy of projectiles, bows and arrows (see 8.24)	80
A.48	Small balls (see 4.22 and 5.10)	80
A.49	Toy scooters (see 4.15.5)	80
A.50	Hemispheric-shaped toys (see 5.12)	81
Annex ZA (informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives		82
Bibliography		84