

TEST REPORT

EN 1176-1:2017+A1:2023

Playground equipment and surfacing Part 1: General safety requirements and test methods

Report Reference No.: 08.05.23.0385.01

Compiled by (+ signature).....: David Xu

Approved by (+ signature).....: Frant Chiu

Date of issue: 2023-12-26



Testing Laboratory: Anxin Product Test Service Co., Ltd

Address: Floor 2, Yuanjing Building, No.899, Sanyuanli Dadao, Guangzhou

Applicant's name: Guangzhou Leqi Amusement Equipment Co.,LTD

Address: No.33, Tai An Road, Da Long Street, Pan Yu Dist, GuangZhou, China

Test specification:

Standard.....: EN 1176-1:2017+A1:2023, EN 1176-3:2017

Test procedure: SCT

Non-standard test method.....: N/A

Test Report Form No.: EN 1176-1:2017+A1:2023, EN 1176-3:2017

Test Report Form(s) Originator: SCT

Master TRF: 2023-12

Test item description: Indoor Playground

Trade Mark: 

Manufacturer: Guangzhou Leqi Amusement Equipment Co.,LTD

Address: No.33, Tai An Road, Da Long Street, Pan Yu Dist, GuangZhou, China

Factory: Guangzhou Leqi Amusement Equipment Co.,LTD

Address: No.33, Tai An Road, Da Long Street, Pan Yu Dist, GuangZhou, China

Model/Type reference: LP002

Ratings: Maximum height of the user:2.0m; Maximum weight of each user: 100Kg; Maximum number of users: 0.5 user for each m²

Copy of marking plate:

Guangzhou Leqi Amusement Equipment Co.,LTD

Indoor Playground

Model: LP002



Maximum height of the user:2.0m; Maximum weight of each user: 100Kg; Maximum number of users: 0.5 user for each m²

EN 1176-1:2017+A1:2023, EN 1176-3:2017

No.33, Tai An Road, Da Long Street, Pan Yu Dist, GuangZhou, China

General remarks:

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(See Enclosure #)" refers to additional information appended to the report.

"(See appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

Summary of testing:

The submitted sample was complied with EN 1176-1:2017+A1:2023, EN 1176-3:2017

Possible test case verdicts:

- test case does not apply to the test object: N/A
- test object does meet the requirement.....: P(Pass)
- test object does not meet the requirement.....: F(Fail)

Testing

Date of receipt of test item: 2023-11-15

Date (s) of performance of tests: 2023-11-15 to 2023-12-26

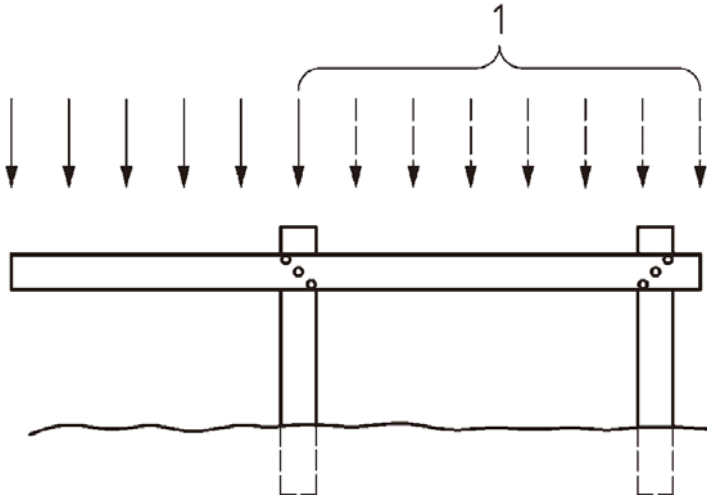
Clause	Requirement - Test	Result - Remark	Verdict
4	Safety requirements		—
4.1	Materials		P
4.1.1	General		P
	Materials shall conform to 4.1.2 to 4.1.6.		P
	Materials shall be selected and protected such that the structural integrity of the equipment or impact attenuating surfacing manufactured from them is not affected before the next relevant inspection and maintenance.		P
	The provisions relating to certain materials in this standard do not imply that other equivalent materials are unsuitable in the manufacture of playground equipment.		P
	The selection of materials and their use should be in accordance with appropriate European Standards.		P
	Special attention should be given to surface coatings to avoid potential toxic hazards.		P
	The choice of materials should be appropriate where extreme climatic or atmospheric conditions are to be expected. Care should be taken where direct skin contact is to be expected.		P
	In the choice of a material or substance for playground equipment or impact attenuating surfacing, consideration should be given to the eventual disposal of the material or substance having regard to any possible environmental toxic hazard.		P
4.1.2	Flammability		P
	To avoid the risk of fire and associated hazards, materials known to produce surface flash shall not be used. Particular attention should be given to newly developed products whose properties might not be fully known.		P
4.1.3	Timber and associated products		P
	Timber parts shall be designed in such a way that precipitation can drain off freely and water accumulation shall be avoided.		P
	In cases of ground contact, one or more of the following methods shall be used:		P
	a) use of timber species with sufficient natural resistance in accordance with classes 1 and 2 of the natural resistance classification given in EN 350:2016, 5.2;		P
	b) construction methods, e.g. post shoe;		P

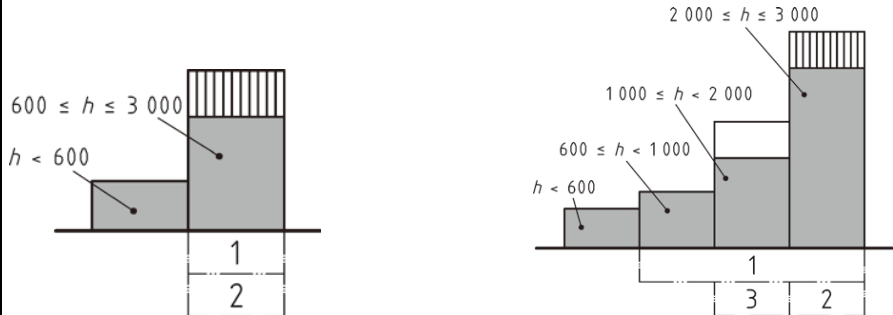
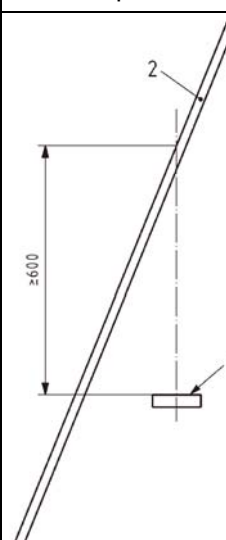
EN 1176-1:2017+A1:2023

Clause	Requirement - Test	Result - Remark	Verdict
	c) use of timber treated with wood preservatives in accordance with EN 351-1:2007, Figure A.1, and in accordance with EN 335, use class 4.		P
	All components made of timber and associated products, other than those species conforming to a), that affect the stability of the structure and are in constant contact with the ground shall be treated in accordance with c).		P
	When selecting metal fastenings, consideration should be given to the species of timber and chemical treatments used as some will accelerate corrosion of metals if there is contact between them.		P
	Plywood shall be in accordance with EN 636 and shall be weatherproofed.		P
4.1.4	Metals		P
	Metal parts should be protected against atmospheric conditions and cathodic corrosion.		P
	Metals that produce toxic oxides that scale or flake shall be protected by a non-toxic coating.		P
4.1.5	Synthetics		P
	If, during maintenance, it is difficult to determine at what point material becomes brittle, manufacturers shall give an indication of the time period after which the part or equipment or impact attenuating surfacing should be replaced.		P
	It should be possible for the operator of the playground to visually identify excessive wear of the gelcoat of GRP (glass-reinforced plastics) products intended for sliding before the user becomes exposed to the glass fibres.		P
	Consideration should also be given to degradation of structural components or impact attenuating surfacing through ultraviolet influences.		P
4.1.6	Dangerous substances		P
	Dangerous substances shall not be used in playground equipment or impact attenuating surfacing in such a way that they can cause adverse health effects to the user of the equipment.		P
4.2	Design and manufacture		P
4.2.1	General		P

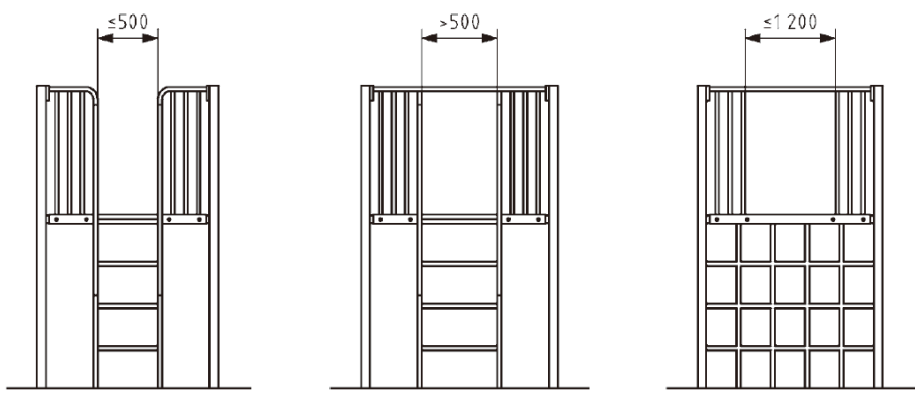
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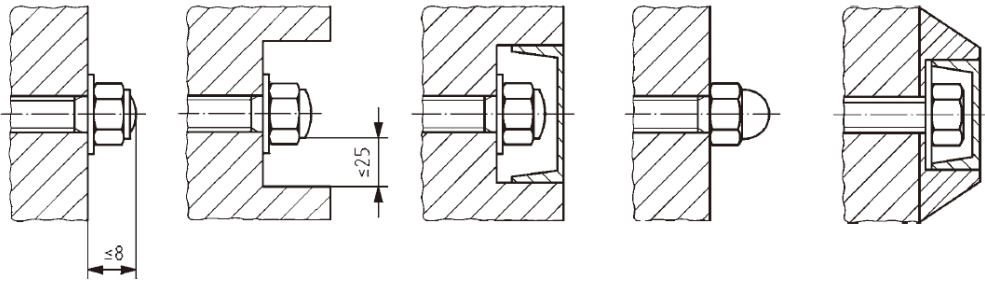
Clause	Requirement - Test	Result - Remark	Verdict
	Equipment where the primary play function is augmented by a secondary motion, e.g. rocking and/or rotating, shall conform to the additional parts of EN 1176 relating to both play functions, as appropriate, unless the equipment is specifically covered in just one of the additional parts of EN 1176.		P
	The dimensions and degree of difficulty of the equipment should be suitable for the intended user group. The equipment should be designed so that the risk involved in play is apparent and foreseeable by the child.		P
	Except when intended for water play, all parts of playground equipment should be designed so that they do not accumulate water e.g. space beneath bouncing facility or carousel flush with the ground.		P
4.2.2	Structural integrity		P
	For playground equipment, the structural integrity for the worst case of the intended combinations shall be proved.		P
	Structural integrity, including stability of the equipment shall be assessed by one of the following: a) calculation, in accordance with Annexes A and B; b) physical testing, in accordance with Annex C; or c) a combination of a) and b).		P
	When calculations are carried out in accordance with Annex B no limit states shall be exceeded at combinations of loads as given in B.2.		P
	When tested in accordance with Annex C, the equipment shall not show any cracks, damage or excessive permanent deformation (see C.1.2). Each structure shall resist both the permanent and variable loads acting on equipment and parts of equipment as described in Annex C.		P
	When playground equipment relies on one post for its stability, the construction should be carried out in order to: — minimize rotting or corrosion in parts relevant for stability; — allow for controlling degradation and the need for decommission; — be used without collapse within the foreseen inspection period when maintained correctly.		P

Clause	Requirement - Test	Result - Remark	Verdict
	Structural parts shall resist the worst case loading condition.		P
	 Key 1 remove this part of the load because of favourable effects Figure 7 — Example of removal of that part of the user load which causes a favourable effect		P
4.2.3	Accessibility for adults		P
	Playground equipment shall be designed to ensure that adults are able to gain access to assist children within the equipment.		P
	Enclosed parts of the equipment such as tunnels and playhouses, with an internal distance greater than 2 000 mm from an entry point shall have at least two access openings that are independent of one another and situated on different sides of the equipment. These openings shall not be capable of being locked and shall be accessible without any additional aids (e.g. a ladder that is not an integral part of the equipment). These access openings shall have no dimension less than 500 mm.		P
	Because of the risk of fire, these two openings shall allow the user to leave the equipment by different routes.		P
4.2.4	Protection against falling		P
4.2.4.1	General		P
	Different types of protection against falling from elevated platforms are required. The type of protection required will depend on the free height of fall and on the type of equipment, whether it is easily accessible or not (see 4.2.4.3 and 4.2.4.4). See Figure 8 and Annex F.		P

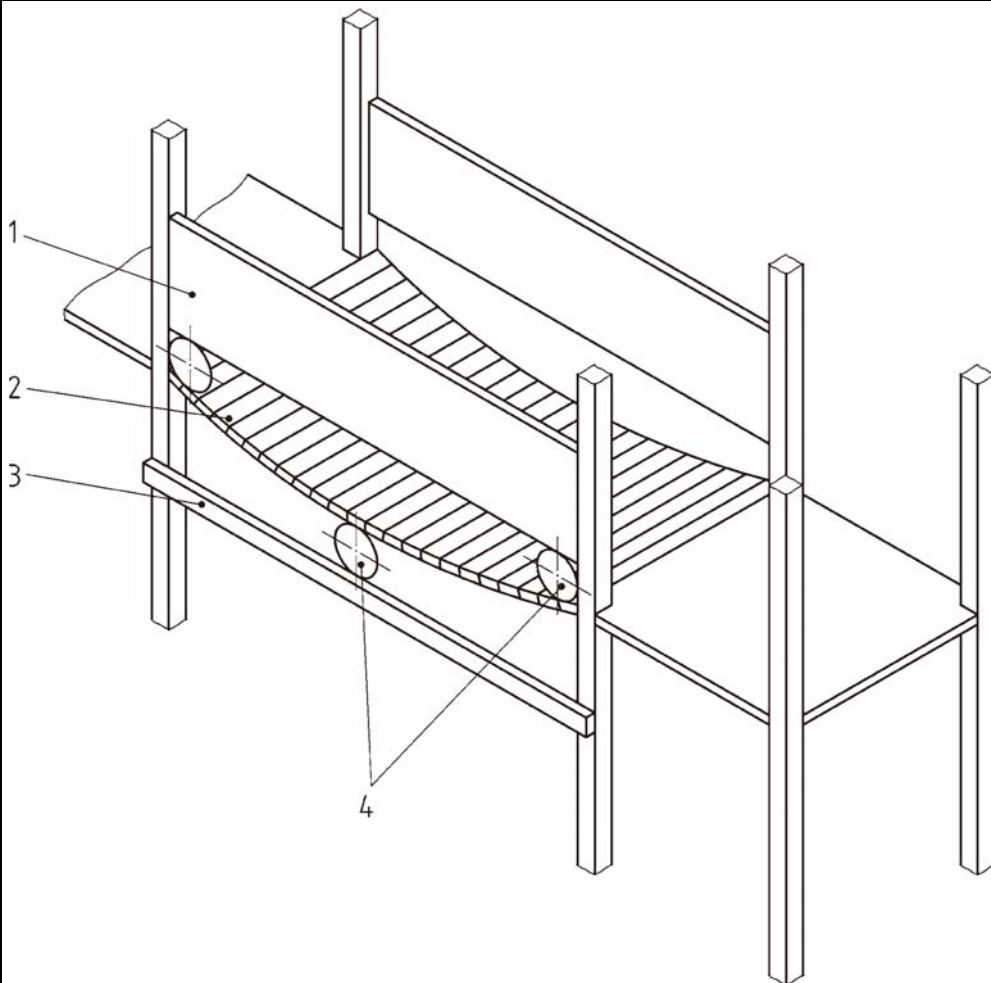
Clause	Requirement - Test	Result - Remark	Verdict
	When installed on ramps or stairs, handrails, guardrails or barriers shall commence at the lowest position on the ramp or stairs.		P
	 a) Protection against falling for easily accessible equipment b) Protection against falling for not easily accessible equipment Key 1 impact attenuating surfacing in accordance with 4.2.8.5 2 barriers required 3 guardrail required Figure 8 — General protection against falling where there is no forced movement		P
4.2.4.2	Handrails		N/A
	Handrails shall be not less than 600 mm and not more than 850 mm above the foot position (see Figure 9). As a minimum, handrails shall conform to the requirements for grasp (see 4.2.4.7).		N/A
	 Key 1 foot position 2 handrail Figure 9 — Guidance on measurement of height of handrail above foot position		N/A
4.2.4.3	Guardrails		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	For equipment other than that which is easily accessible, guardrails shall be provided when the platform is 1 000 mm to 2 000 mm above the playing surface (see Figure 8b)). The height to the top of the guardrail shall be not less than 600 mm and not more than 850 mm measured from the surface of the platform, stairs or ramp.		N/A
	Guardrails shall completely surround the platform except for entrance and exit openings necessary for each play element. The width of entrance and exit openings in guardrails, with the exception of stairs, ramps and bridges, shall have a maximum clear opening of 500 mm, when measured horizontally at a position, with a height between 600 mm to 850 mm from the platform. For stairs, ramps and bridges the width of the exit opening in the guardrail shall be no greater than the width of these elements.		N/A
4.2.4.4	Barriers		P
	Except for entrance and exit openings necessary for each play element, barriers shall completely surround the platform. The width of entrance and exit openings in barriers shall have a clear opening of 500 mm maximum, when measured horizontally at any point (see Figure 10a)), unless a guardrail is provided across the opening (see Figure 10b) and Figure 10c)). For stairs, ramps, bridges, etc. that have additional barriers as part of their structure, the width of the exit opening in the barrier shall be no greater than the width of these elements.		P
	There shall be no intermediate horizontal or near horizontal rails or bars that can be used as steps by children attempting to climb. The design of the top of the barriers should not encourage children to stand or sit on them, nor should any infilling encourage climbing.		P
	Openings between the platform surface and the lower edge of the barrier and between any infilling elements shall not allow passage of the probe C.		P
	For easily accessible equipment, barriers shall be provided when the platform is more than 600 mm above the playing surface (see Figure 8a)).		P
	For equipment other than easily accessible, barriers shall be provided when the platform is more than 2 000 mm above the playing surface (see Figure 8b)).		P
	The height to the top of the barrier shall be at least 700 mm measured from the surface of the platform, stairs or ramp.		P

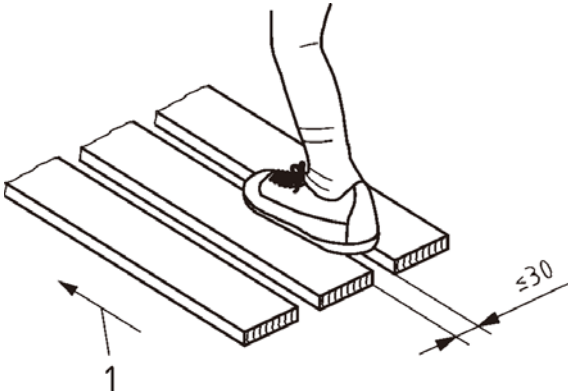
Clause	Requirement - Test	Result - Remark	Verdict
	Openings in the barrier of easily accessible equipment/parts of equipment that give access to steep play elements shall conform to the requirements of 4.2.9.4. For all other equipment, openings in the barrier provided with a guardrail, which give access to steep play elements, shall not be greater than 1 200 mm (see Figure 10c)).	550mm for gymnastics trampoline	P
	 a) any narrow element b) steep play element is at least as wide as the opening c) steep play element is wider than the opening Figure 10 — Entrance and exit openings in barriers for steep play elements		P
4.2.4.5	Strength requirements		P
	Barriers and guardrails shall conform to 4.2.2.		P
4.2.4.6	Grip requirements		P
	The cross-section of any support designed to be gripped for support of full body weight (see 3.16 and Figure 5) shall have a dimension of not less than 16 mm or more than 45 mm in any direction, when measured across its centre.		P
4.2.4.7	Grasp requirements		P
	The cross-section of any support designed to be grasped (see 3.17 and Figure 6) shall have a width not exceeding 60 mm.		P
4.2.5	Finish of equipment		P
	Wooden equipment shall be made of wood with a low susceptibility to splintering. The surface finish of equipment made of other materials (e.g. glass fibre) shall be non-splintering.		P
	There shall be no protruding nails, projecting wire rope terminations or pointed or sharp-edged components. Rough surfaces should not present any risk of injury. Protruding bolt threads within any accessible part of the equipment shall be permanently covered, e.g. dome headed nuts. Nuts and bolt heads that project less than 8 mm shall be free from burrs.		P

Clause	Requirement - Test	Result - Remark	Verdict
	Corners, edges and projecting parts within the space occupied by the user that protrude more than 8 mm, and which are not shielded by adjacent areas that are not more than 25 mm from the end of the projecting part, shall be rounded off. The minimum radius of the curve shall be 3 mm.		P
	Corners, edges and projections with a radius less than 3 mm may be in other accessible parts of the equipment only if they are not sharp.		P
	 Figure 11 — Examples of protection for nuts and bolts		P
4.2.6	Moving parts		P
	There shall be no crushing points or shearing points between moving and/or stationary parts of the equipment, in accordance with 4.2.7.		P
	Parts from which a high impact force can emanate should have an attenuating construction.		P
	If moving parts of the equipment can endanger the body, there shall be a ground clearance of at least 400 mm.		P
4.2.7	Protection against entrapment		P
4.2.7.1	General		P
	When choosing materials, the manufacturer should take into account the entrapment hazards that can occur through distortion of materials during use.		P
	Openings shall have no parts that converge in the downward direction at an angle of less than 60° taking into consideration the following conditions (4.2.7.2).		P
4.2.7.2	Entrapment of the head and neck		P
	Equipment shall be constructed so that any openings do not create head and neck entrapment hazards either by head first or feet first passage.		P

Clause	Requirement - Test	Result - Remark	Verdict
	Hazardous situations in which this type of entrapment can be encountered include the following: — completely bound openings through which a user can slide feet first or head first; — partially bound or V-shaped openings; — other openings (e.g. shearing or moving openings).		P
	a) Completely bound openings: Accessible completely bound openings with a lower edge more than 600 mm above the playing surface (see 3.5) shall be tested in accordance with D.2.1. Probes C or E shall not pass through any opening unless it also allows the passage of the large head probe D.		P
	b) Partially bound and V-shaped openings: Partially bound and V-shaped openings with an entrance at 600 mm or more above the ground shall be constructed so that either: 1) opening is not accessible when tested in accordance with D.2.2; or 2) if accessible at a position of 600 mm or more above ground when tested in accordance with D.2.2, depending on the angular orientation range of the opening (see Figure D.4), shall conform to the following: — Range 1: (template centre line $\pm 45^\circ$ from vertical); when the template apex contacts the base of the opening, the depth of the opening shall be less than the length of the template to the underside of the shoulder section. — Range 2: (template centre line from horizontal to $+ 45^\circ$); when the template apex contacts the base of the opening, the depth of the opening shall be less than the 'A' portion of the template. If the depth of the opening is greater than the 'A' portion of the template all parts of the opening above the 'A' portion shall also allow insertion of the shoulder section of the template or probe D. — Range 3: No template test requirements.		P
	c) Other openings (e.g. shearing or moving openings):		P
	Non-rigid members (for example ropes) shall not overlap if, by doing so, they create openings that do not conform to the requirements for completely bound openings.		P

Clause	Requirement - Test	Result - Remark	Verdict
	Openings between the flexible parts of suspended bridges and any rigid side members shall be not less than 230 mm in diameter under the worst case condition of loading (see 4.2.2). Both loaded and unloaded situations shall be considered.		P
	 Key 1 rigid side members 2 suspended bridge 3 rigid side members 4 diameter 230 mm minimum Figure 12 — Suspended bridge		P
4.2.7.3	Entrapment of clothing/hair		P

Clause	Requirement - Test	Result - Remark	Verdict																														
	Equipment should be constructed so that hazardous situations including the following, in which clothing entrapment can be encountered, are not created: a) gaps or V-shaped openings in which a part of clothing can become trapped while or immediately before the user is undergoing a forced movement; b) protrusions; and c) spindles/rotating parts.		P																														
	Special consideration should be given when using elements of circular cross-section, e.g. round tubes or poles, to avoid clothing entanglement within the falling space.		P																														
	Slides and fireman's poles shall be constructed so that openings located within the free space do not trap the toggle when tested in accordance with D.3.		P																														
	Roofs shall be constructed so that they do not trap the toggle when tested in accordance with D.3.		P																														
	Spindles and rotating parts shall be constructed so as to prevent entanglement of clothing or hair.		P																														
4.2.7.4	Entrapment of the whole body		P																														
	Equipment should be constructed so that the following hazardous situations, which might cause entrapment, are not created: a) tunnels into which children can crawl with their whole body; and b) suspended parts which are heavy or have rigid suspension.		P																														
	Tunnels shall have a maximum length of 10 000 mm and conform to the requirements given in Table 1.		P																														
	Table 1 — Requirements for tunnels		P																														
	<table><tr><th>Requirements</th><th>Open one end</th><th colspan="4">Open both ends</th></tr><tr><td>Inclination</td><td>≤ 5° and upwards only when entering</td><td colspan="3">≤ 15°</td><td>> 15°</td></tr><tr><td>Minimum internal dimension ^a</td><td>≥ 750</td><td>≥ 400</td><td>≥ 500</td><td>≥ 750</td><td>≥ 750</td></tr><tr><td>Length</td><td>≤ 2 000</td><td>≤ 1 000</td><td>≤ 2 000</td><td>≤ 10 000</td><td>≤ 10 000</td></tr><tr><td>Other requirements</td><td>None</td><td>None</td><td>None</td><td>None</td><td>Provision for climbing e.g. steps or handles</td></tr></table> NOTE For tunnel slides, see EN 1176-3. ^a Measured at the narrowest point.		Requirements	Open one end	Open both ends				Inclination	≤ 5° and upwards only when entering	≤ 15°			> 15°	Minimum internal dimension ^a	≥ 750	≥ 400	≥ 500	≥ 750	≥ 750	Length	≤ 2 000	≤ 1 000	≤ 2 000	≤ 10 000	≤ 10 000	Other requirements	None	None	None	None	Provision for climbing e.g. steps or handles	
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4.2.7.5	Entrapment of the foot or leg		P																														

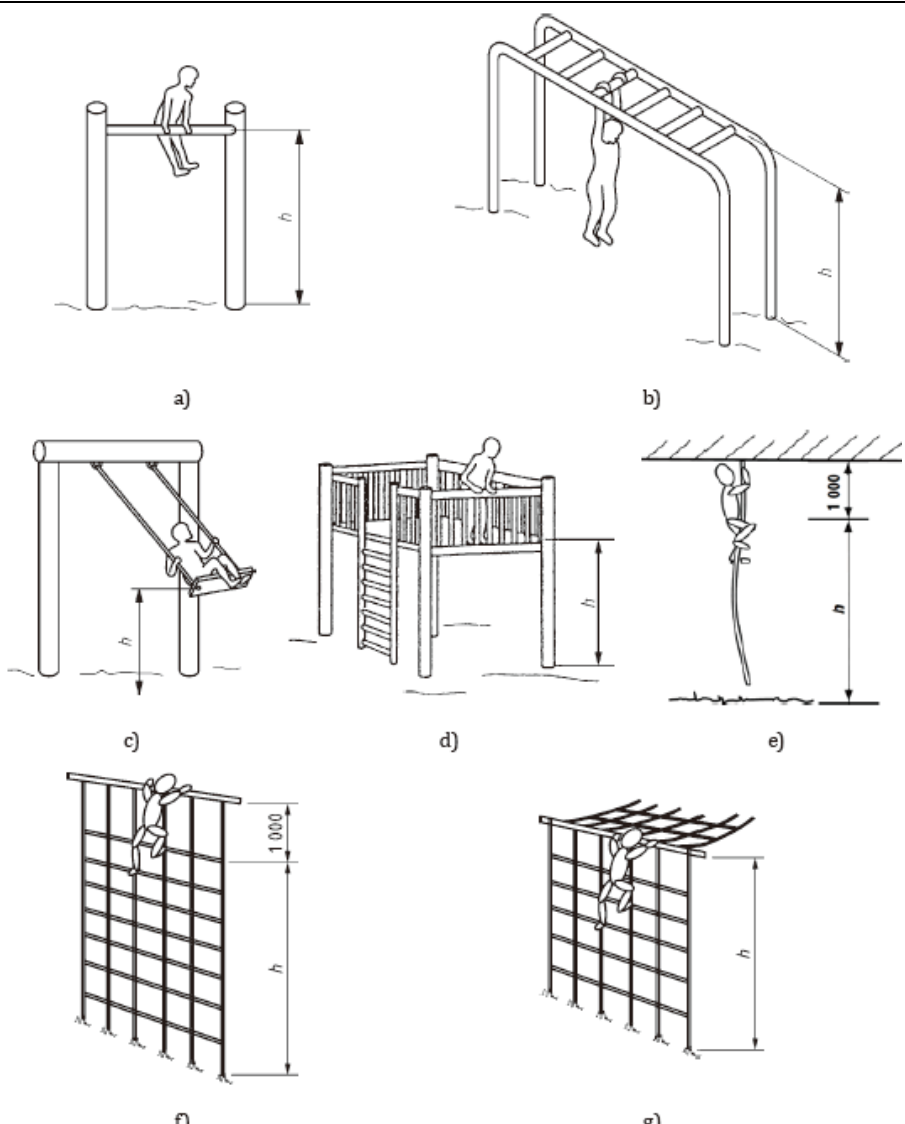
Clause	Requirement - Test	Result - Remark	Verdict
	Equipment should be constructed so that the following hazardous situations, which might cause entrapment, are not created: a) completely bound rigid openings in surfaces on which children can run or climb; and b) footholds, handholds, etc. extending from these surfaces.		P
	 Key 1 direction of travel Figure 13 — Measurement of gaps limited to 30 mm		P
	Surfaces intended for running/walking shall not contain gaps likely to cause foot or leg entrapment. Gaps in the main direction of travel shall not be greater than 30 mm when measured across the direction of travel (see Figure 13).		P
	This requirement does not apply to surfaces inclined more than 38° from the horizontal.		P
4.2.7.6	Entrapment of fingers		P
	Equipment should be constructed so that the following hazardous situations, which may cause entrapment, are not created:		P
	a) gaps in which fingers can be trapped whilst the remainder of the body is moving or continues in forced movement, for example sliding, swinging; and		P
	b) variable gaps (excluding chains). Openings within the free space, where the user is subjected to forced movement, and/or holes which have a lower edge more than 1 000 mm above the potential impact area, when tested in accordance with D.4, shall conform to one of the following requirements:		P

Clause	Requirement - Test	Result - Remark	Verdict
	c) the 8 mm finger rod (see Figure D.10a)) shall not pass through the minimum cross-section of the opening and the profile of the opening shall be such that the rod cannot be locked in any position when set in motion as given in D.4.2; or		P
	d) if the 8 mm finger rod passes through the opening, the 25 mm finger rod (see Figure D.10b)) shall also pass through the opening, provided that the opening does not permit access to another finger entrapment site.		P
	The ends of tubes and pipes shall be closed off to prevent the risk of finger entrapment.		P
	The closures shall not be removable without using tools.		P
	Gaps whose dimensions change during use of the equipment shall have a minimum dimension in any position of 12 mm.		P
	Splits in single pieces of wood shall not be considered as finger entrapment where the gap diminishes towards the centre of the wooden part.		P
4.2.8	Protection against injuries during movement and falling		P
4.2.8.1	Determination of free height of fall		P
	Unless stated otherwise, determination of free height of fall shall be as given in Table 2. In determining the free height of fall, the possible movements of the equipment and of the user shall be taken into account. In general, this means that the maximum movement of the equipment shall be taken.		P
	In the case of roofs, or other features not intended for play, it is not required for them to be included in the free height of fall where access has not been encouraged.		P
	EXAMPLE Some examples of features that could encourage access are: — play feature, which can be accessed from the roof; — hand and foot holds for climbing; — arm or leg reach distance; — inclination of the roof; — roughness of the roof surface.		P
	The free height of fall (h) shall not exceed 3 000 mm (see Figure 14).		P

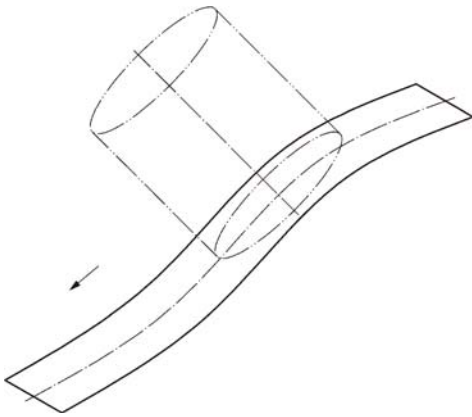
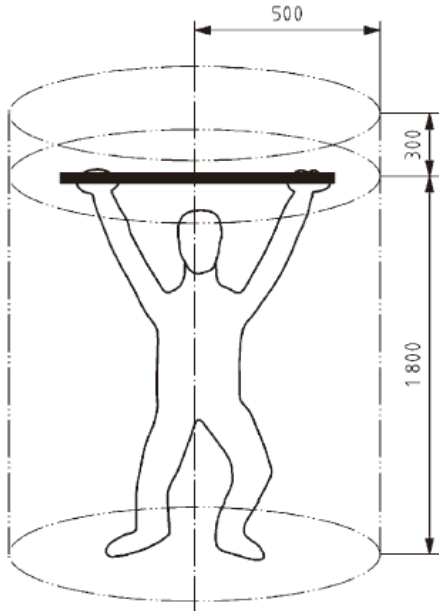
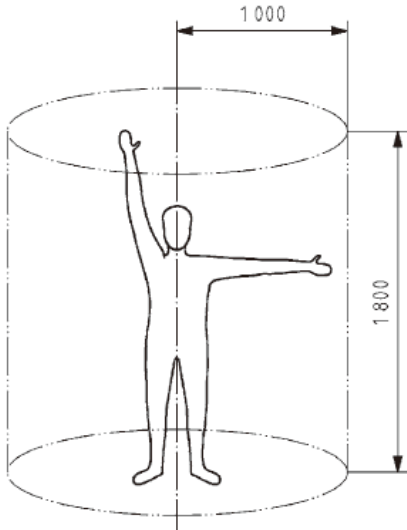
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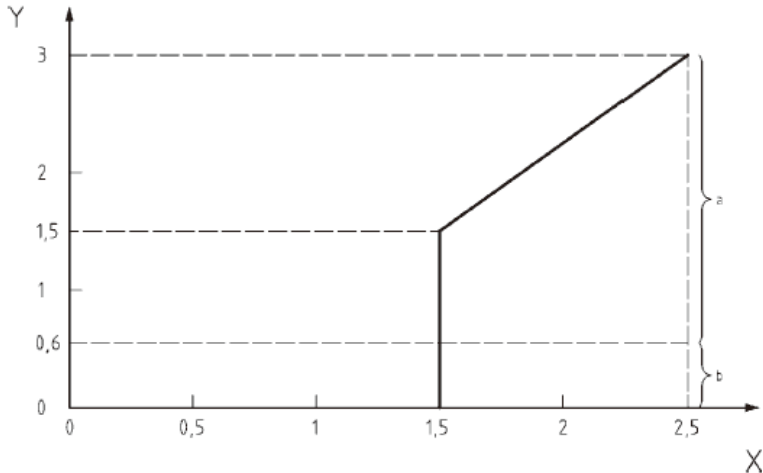
Clause	Requirement - Test	Result - Remark	Verdict
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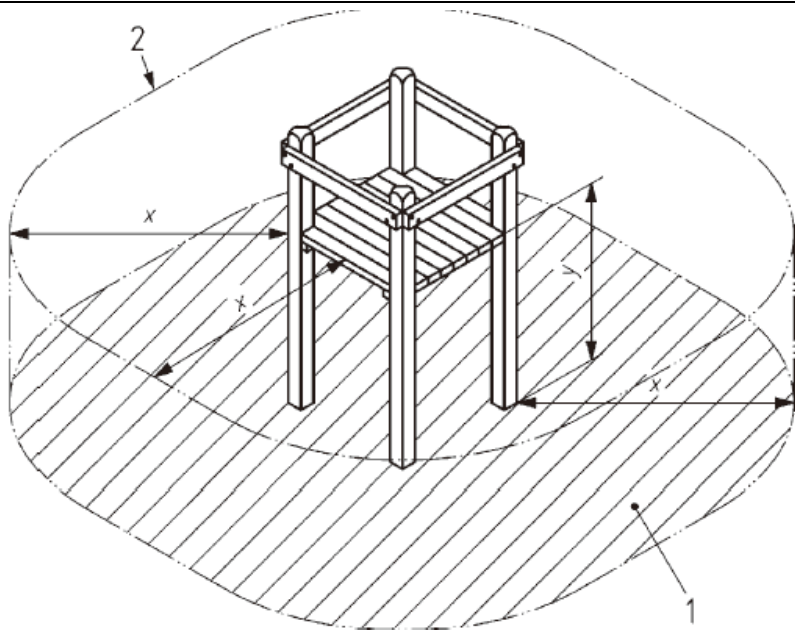
	For the determination of free height of fall, see Table 2.		P																
	<table><tr><th colspan="2">Table 2 — Free height of fall for different types of use</th></tr><tr><th>Type of use</th><th>Vertical distance</th></tr><tr><td>Standing</td><td>From foot support to surface below</td></tr><tr><td>Sitting</td><td>From seat to surface below</td></tr><tr><td>Hanging ^a (When full body support is provided by the hands only and the whole body can be lifted up to the hand support)</td><td>From hand support height to surface below</td></tr><tr><td>Climbing ^a (When body support is a combination of feet/legs and hands, e.g. climbing ropes or sliding/climbing poles)</td><td>Maximum hand support: 4 000 mm to the surface below (free height of fall measured from maximum hand support minus 1 000 mm to the surface below)</td></tr><tr><td>Bouncing</td><td>From suspension bed to the lowest point of falling space plus 900 mm</td></tr><tr><td colspan="2">^a Such equipment constructed for use as 'climbing' or 'hanging' shall not encourage access to positions for full body support with a free height of fall of more than 3 000 mm e.g. horizontal net (climbing), horizontal ladder intended for arm walking (hanging).</td></tr></table>	Table 2 — Free height of fall for different types of use		Type of use	Vertical distance	Standing	From foot support to surface below	Sitting	From seat to surface below	Hanging ^a (When full body support is provided by the hands only and the whole body can be lifted up to the hand support)	From hand support height to surface below	Climbing ^a (When body support is a combination of feet/legs and hands, e.g. climbing ropes or sliding/climbing poles)	Maximum hand support: 4 000 mm to the surface below (free height of fall measured from maximum hand support minus 1 000 mm to the surface below)	Bouncing	From suspension bed to the lowest point of falling space plus 900 mm	^a Such equipment constructed for use as 'climbing' or 'hanging' shall not encourage access to positions for full body support with a free height of fall of more than 3 000 mm e.g. horizontal net (climbing), horizontal ladder intended for arm walking (hanging).			P
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Sitting	From seat to surface below																		
Hanging ^a (When full body support is provided by the hands only and the whole body can be lifted up to the hand support)	From hand support height to surface below																		
Climbing ^a (When body support is a combination of feet/legs and hands, e.g. climbing ropes or sliding/climbing poles)	Maximum hand support: 4 000 mm to the surface below (free height of fall measured from maximum hand support minus 1 000 mm to the surface below)																		
Bouncing	From suspension bed to the lowest point of falling space plus 900 mm																		
^a Such equipment constructed for use as 'climbing' or 'hanging' shall not encourage access to positions for full body support with a free height of fall of more than 3 000 mm e.g. horizontal net (climbing), horizontal ladder intended for arm walking (hanging).																			

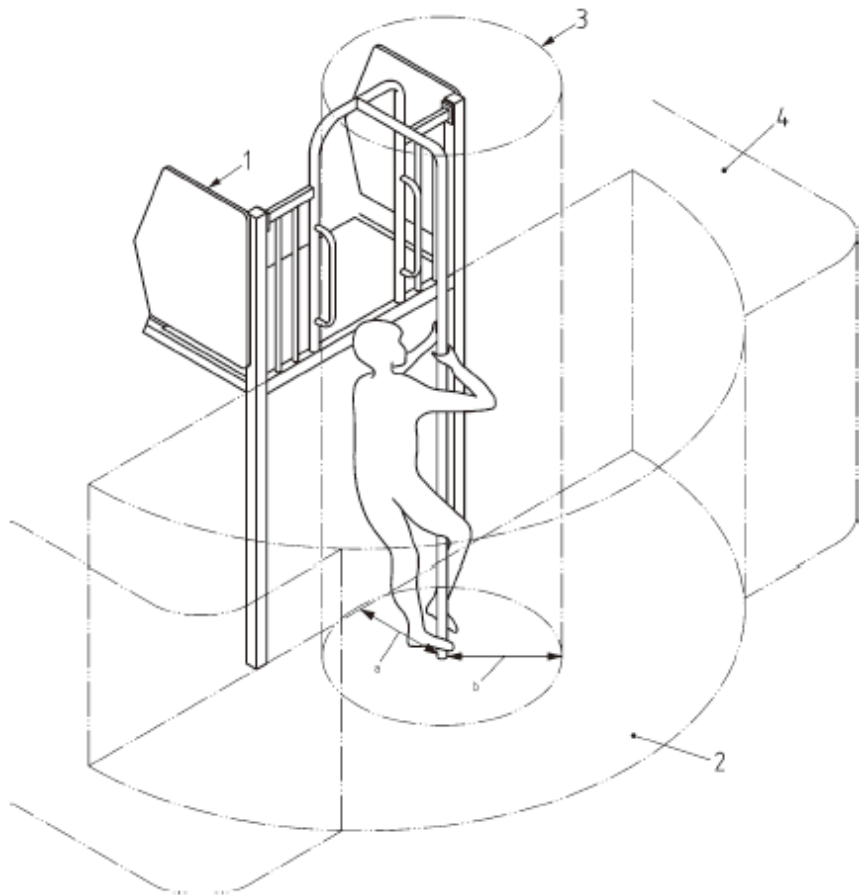
Clause	Requirement - Test	Result - Remark	Verdict
	 a) b) c) d) e) f) g) Key h free height of fall Figure 14 — Examples showing free height of fall		P
4.2.8.2	Determination of spaces and areas		P
4.2.8.2.1	General		P

Clause	Requirement - Test	Result - Remark	Verdict
	The requirements for falling space and impact area within this standard are intended to offer some protection to users during the first impact of a potential fall. These spaces and areas will also afford some protection to other users who might be circulating around the equipment items, but these requirements should be considered in addition to this standard as they are likely to be site specific and may be subject to national control. In particular the attention of the play area designer is directed to possible hazards associated with the close proximity of play structures intended for users of greatly different age groups and those in highly populated play areas such as those found in some schools.		P
	Care should be taken with seated dynamic equipment with significant motion, e.g. swings and certain types of rocking equipment, to discourage users of the surrounding play area from unintentionally coming into contact with the equipment. This can be achieved, for example, by placing the equipment at the perimeter of the play area.		P
4.2.8.2.2	Minimum space The minimum space shall consist of the following: a) space occupied by the equipment; b) free space, if any; and c) falling space.		P
4.2.8.2.3	Free space		P
	The free space is a series of cylindrical spaces representing the user (see Figure 15), originating from and perpendicular to the body bearing surface, along the forced path of the user.		P
	The cylindrical space is shown in Figure 16 and its dimensions are given in Table 3. In determining the free space, the possible movements of the equipment and the user shall be taken into account.		P
	Fireman's poles that are accessed via a platform or other starting point shall have a clearance of at least 350 mm from the pole to the edge of the adjacent structure.		P

Clause	Requirement - Test	Result - Remark	Verdict												
	 Figure 15 — Determination of the free space; example of a slide		P												
	 a) Hanging user  b) Standing user Figure 16 — Cylindrical space		P												
	Table 3 — Dimensions of the cylinder for the determination of the free space <table><tr><th>Type of use</th><th>Radius</th><th>Height</th></tr><tr><td>Standing</td><td>1 000</td><td>1 800</td></tr><tr><td>Sitting</td><td>1 000</td><td>1 500</td></tr><tr><td>Hanging</td><td>500</td><td>300 above and 1 800 below hanging grip position</td></tr></table> NOTE In case of hanging, $h = 300$ mm because of the possibility that the users pull themselves up [see Figure 16a)].	Type of use	Radius	Height	Standing	1 000	1 800	Sitting	1 000	1 500	Hanging	500	300 above and 1 800 below hanging grip position		P
Type of use	Radius	Height													
Standing	1 000	1 800													
Sitting	1 000	1 500													
Hanging	500	300 above and 1 800 below hanging grip position													
4.2.8.2.4	Extent of the impact area		P												
	Dimensions of the impact area are shown in Figure 17.		P												

Clause	Requirement - Test	Result - Remark	Verdict
	In certain cases, such as a carousel giving the user a horizontal speed, the impact area may be extended to provide adequate protection against falling injuries.		P
	In determining the impact area, the possible movements of the equipment and the user shall be taken into account.		P
	 Key Y free height of fall X minimum dimension of impact area a impact attenuating surfacing with requirements (4.2.8.5.2) b surface with no impact attenuation test requirements, unless there is forced movement (4.2.8.5.3) Figure 17 — Extent of the impact area		P
4.2.8.2.5	Extent of the falling space		P
	Unless otherwise specified, the extent of the falling space shall be at least 1 500 mm around elevated parts of the equipment, measured horizontally and extending from the vertical projection plane below the equipment.		P
	The falling space shall increase for free heights of fall above 1 500 mm together with the extent of the impact area (see 4.2.8.2.4). This requirement can be varied in certain cases, e.g. increased, in the case of forced movement or reduced, in the case of equipment installed on or against a wall or fully enclosed equipment.		P
	In most cases there may be overlapping of falling spaces including impact areas. Unless specified in other parts of this standard, overlapping of the falling space where forced movement exists should not occur. Where two items with different fall heights are sited together the larger of the two impact areas will take precedence.		P
	Examples of falling space are given in Figures 18 and 19.		P

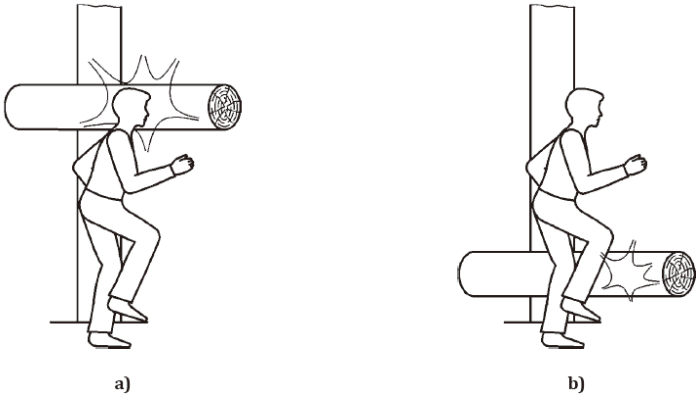
Clause	Requirement - Test	Result - Remark	Verdict
	 Key 1 impact area 2 falling space x extent of falling space y height of falling space Figure 18 — Example of falling space and impact area of a platform		P

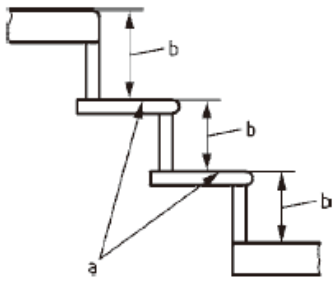
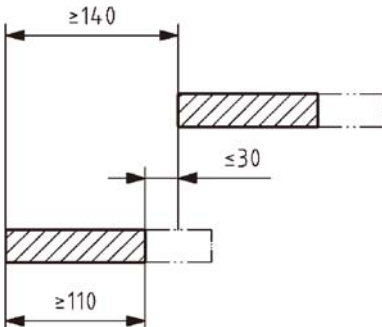
Clause	Requirement - Test	Result - Remark	Verdict
	 Key 1 space occupied by the equipment 2 falling space of the fireman's pole 3 free space of the fireman's pole 4 falling space of platform - a fireman's pole minimum clearance (see 4.2.8.3) - b free space radius (see 4.2.8.2.3) Figure 19 — Example of falling space and free space of a fireman's pole		P
4.2.8.3	Protection against injuries in the free space for users undergoing a movement that is forced by the equipment		P
	Unless stated otherwise, there shall be no overlapping of adjacent free spaces, or of free space and falling space of two different pieces of equipment.		P
	The free space shall not contain any obstacles that interfere with the passage of a user whilst undergoing a forced movement e.g. tree branches, ropes, cross beams etc. Parts of the equipment bearing or containing the user, or helping the user to keep balance, shall be permitted within the free space, e.g. a platform with a fireman's pole (see 4.2.8.2.3).		P

Clause	Requirement - Test	Result - Remark	Verdict
	The free space shall not be intersected by main travelling routes at, or through, the playground (e.g. pedestrian pathway).		P
4.2.8.4	Protection against injuries in the falling space		P
	The falling space shall not contain any obstacles onto which a user could fall and cause injuries, e.g. posts not flush with adjacent parts or exposed foundations (see 4.2.14).		P
	The following parts of play structures may be in the falling space: — adjacent parts of play structures with a difference in free height of fall of less than 600 mm; — parts of the equipment bearing or containing the user, or helping the user to keep balance; — parts of the equipment with an inclination of 60° or more from the horizontal.		P
4.2.8.5	Protection against injuries from the surface of the impact area		P
4.2.8.5.1	General		P
	The surface of the impact area shall be free from sharp edged parts or projections and shall be installed without creating any entrapment situation (see 4.2.7).		P
	If loose particulate material is used it shall be installed to a layer thickness of 100 mm more than that determined in Table 4 or by testing to EN 1177.		P
4.2.8.5.2	Equipment with a free height of fall greater than 600 mm or with forced movement		P
	Beneath all playground equipment with a free height of fall of more than 600 mm and/or equipment causing a forced movement on the body of the user (e.g. swings, slides, rocking equipment, cableways, carousels, etc.), there shall be impact attenuating surfacing over the entire impact area.		P
	The critical fall height of the surfacing shall be equal to, or greater than, the free height of fall of the equipment.		P
	Examples for commonly used impact attenuating materials are given in Table 4 with the related maximum free heights of fall, tested in accordance with EN 1177 and measured partly on site and partly in the laboratory with different test conditions. Where the installed surfacing can be verified as being in accordance with Table 4, no additional testing is required.		P

EN 1176-1:2017+A1:2023

Clause	Requirement - Test	Result - Remark	Verdict																																		
	The extent of the impact area is given in 4.2.8.2.4.		P																																		
	Impact attenuating materials should be adequately maintained. Failure to maintain such surfaces will result in the impact attenuation being significantly reduced.		P																																		
	Table 4 — Examples of commonly used impact attenuating materials, depths and corresponding maximum free heights of fall		P																																		
	<table><tr><th>Material ^a</th><th>Description</th><th>Minimum depth ^b</th><th>Maximum free heights of fall</th></tr><tr><td>Where the installed surfacing is verified (e.g. sieve test) as being in accordance with this table or carries a test report according to EN 1177, no additional testing is required</td><td>mm</td><td>mm</td><td>mm</td></tr><tr><td>Turf/topsoil</td><td>—</td><td>—</td><td>≤ 1 000 ^d</td></tr><tr><td rowspan="2">Bark</td><td rowspan="2">20 to 80 particle size</td><td>200</td><td>≤ 2 000</td></tr><tr><td>300</td><td>≤ 3 000</td></tr><tr><td rowspan="2">Woodchip</td><td rowspan="2">5 to 30 particle size</td><td>200</td><td>≤ 2 000</td></tr><tr><td>300</td><td>≤ 3 000</td></tr><tr><td rowspan="2">Sand or gravel ^c</td><td rowspan="2">0,25 to 8 grain size</td><td>200</td><td>≤ 2 000</td></tr><tr><td>300</td><td>≤ 3 000</td></tr><tr><td>Other materials and other depths</td><td colspan="2">As tested according to EN 1177</td><td>Critical fall height as tested</td></tr></table>			Material ^a	Description	Minimum depth ^b	Maximum free heights of fall	Where the installed surfacing is verified (e.g. sieve test) as being in accordance with this table or carries a test report according to EN 1177, no additional testing is required	mm	mm	mm	Turf/topsoil	—	—	≤ 1 000 ^d	Bark	20 to 80 particle size	200	≤ 2 000	300	≤ 3 000	Woodchip	5 to 30 particle size	200	≤ 2 000	300	≤ 3 000	Sand or gravel ^c	0,25 to 8 grain size	200	≤ 2 000	300	≤ 3 000	Other materials and other depths	As tested according to EN 1177		Critical fall height as tested
Material ^a	Description	Minimum depth ^b		Maximum free heights of fall																																	
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Sand or gravel ^c	0,25 to 8 grain size	200		≤ 2 000																																	
		300	≤ 3 000																																		
Other materials and other depths	As tested according to EN 1177		Critical fall height as tested																																		
4.2.8.5.3	Equipment with a free height of fall not exceeding 600 mm and without forced movement		P																																		
	It is not necessary to test the critical fall height of a surface beneath playground equipment having a free fall height of less than 600 mm and which does not cause forced movement on the body of the user.		P																																		
4.2.8.5.4	Adjacent platforms		P																																		
	If the free height of fall between adjacent platforms is more than 1 m, the surface of the lower platform shall present the necessary impact attenuating properties.		P																																		
4.2.8.6	Protection against injuries due to other types of movement		P																																		
	The space in, on or around the equipment that can be occupied by the user shall not contain any obstacles that the user is not likely to expect and which could cause injuries if hit by the user.		P																																		

Clause	Requirement - Test	Result - Remark	Verdict
	 a) b) Figure 20 — Unexpected obstacles		P
4.2.9	Means of access		P
4.2.9.1	Ladders		P
	The spacing of the rungs or steps shall conform to the head entrapment requirements given in 4.2.7.2.		P
	Rungs and steps shall be non-rotating and equally spaced.		P
	Equal spacing is required only between the rungs. It is not required between the highest rung and the platform or the ground and the first rung. The requirement for equal spacing does not apply to rope ladders.		P
	Wooden components shall have positive connections that cannot be undone or shifted. Nails or wood screws shall not be used as the only form of connection.		P
	To allow for the foot to rest correctly on the rung or step there shall be an unobstructed space at the rear of the ladder of at least 90 mm from the centre of the rung or tread measured at 90° to the ladder.		P
	Rungs and steps shall be horizontal to within $\pm 3^\circ$.		P
	Ladders shall have rungs and/or stiles or shall have handrails that conform to the requirements for grip according to 4.2.4.6 or for grasp according to 4.2.4.7.		P
4.2.9.2	Stairs		P
	Stairs with a free height of fall greater than 600 mm shall conform to the requirements of 4.2.4 concerning protection against falling. Guardrails and/or barriers shall be provided from the first step and shall conform to the requirements for grasp (4.2.4.7) or a handrail shall be provided.	Stairs with a free height 200mm	P

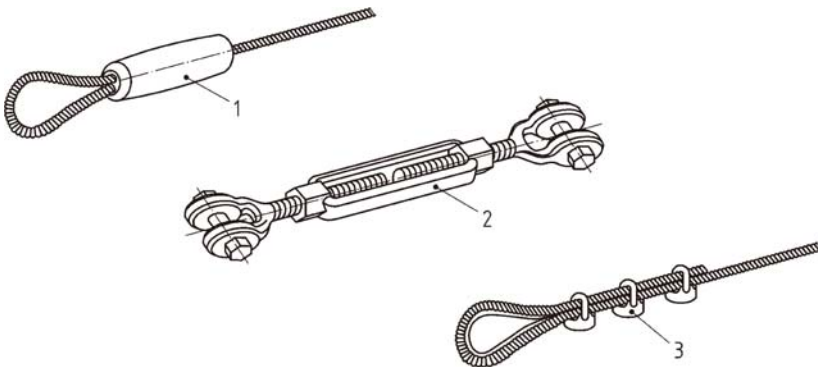
Clause	Requirement - Test	Result - Remark	Verdict
	For stairs leading to platforms up to 1 000 mm in height a guardrail may replace the barrier, providing the gap beneath the guardrail is less than 600 mm when measured from the middle of the tread.	There's a fence around it on the both sides.	P
	The inclination of stairs shall be constant. Openings shall conform to the entrapment requirements given in 4.2.7.2. The treads shall be spaced equally, shall be of uniform construction, and shall be horizontal within $\pm 3^\circ$.		P
	 Key a stair tread b stair riser Figure 21 — Parts of a stair		P
	To provide adequate space for standing, the minimum projection of tread shall be 140 mm and the minimum depth of tread shall be 110 mm (see Figure 22).	The projection of tread were 200 mm and the depth of tread were 250 mm	P
	 Figure 22 — Minimum projection and depth of tread		P
	Where the overall height of the set of stairs is more than 2 000 mm above ground level, intermediate landings shall be provided at height intervals not exceeding 2 000 mm. Intermediate landings shall be at least as wide as the set of stairs and at least 1 000 mm long.		P
4.2.9.3	Ramps		P
	Ramps shall be inclined at an angle of up to 38° to the horizontal and shall be of a constant angle.		P

Clause	Requirement - Test	Result - Remark	Verdict
	Ramps shall conform to the requirements of 4.2.4.		P
	For ramps leading to platforms up to 1 m in height a guardrail may replace the barrier, providing the gap beneath the guardrail is less than 600 mm. If guardrails are used, they shall be provided from the beginning of the ramp.		P
	Ramps shall be level within $\pm 3^\circ$ across their width. To reduce the risk of slipping, ramps expected to be used by all children shall include means to improve the grip of the foot.		P
4.2.9.4	Steep play elements		P
	For steep play elements provided on easily accessible parts of equipment the opening in the barrier shall be 500 mm maximum and the free height of fall of the platform shall be 2 000 mm maximum.		P
	Openings leading from a platform with a free height of fall of > 1 000 mm to a steep play element shall have hand supports that comply with grasp requirements.		P
4.2.9.5	Easily accessible playground equipment		P
	Equipment designed to allow users to move quickly and freely onto it is to be considered as easily accessible.		P
	It is not the intention of this standard to give a definitive list of the types of possible access and associated requirements, but to provide guidance on the best way to tackle the issue of easy access.		P
	The following is an example of the hierarchy of three easy access possibilities: a) Ramps starting from the ground are the easiest means of access to the equipment. b) Stairs are the next easiest means of access to the equipment. c) Ladders are the least easy means of access to equipment in this example.		P
	There are many designs which can delay access to the equipment, thus giving more time for carers to intervene as appropriate. Such design features may include, but are not restricted to, movement, height or dimensional requirements e.g. reach distance or step height.		P
4.2.10	Connections		P

EN 1176-1:2017+A1:2023

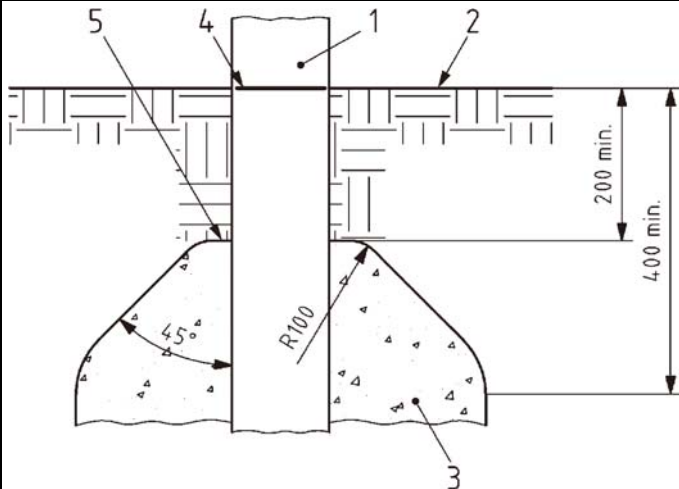
Clause	Requirement - Test	Result - Remark	Verdict
	Connections shall be secured such that they cannot come loose of their own accord unless specifically designed to do so.		P
	Connections shall be safeguarded so that they cannot be undone without tools.		P
4.2.11	Consumable components		P
	Replaceable components should be protected against unauthorized intervention and should require little maintenance. Any lubricants leaking out should not soil the equipment or adversely affect its safe use.		P
4.2.12	Ropes		N/A
4.2.12.1	Ropes fixed at one end		N/A
	For suspended ropes between 1 m and 2 m in length, the distance between ropes fixed at one end and fixed equipment shall be not less than 600 mm and the distance between ropes fixed at one end and swinging equipment shall be not less than 900 mm.		N/A
	Ropes fixed at one end shall not be combined with swings in the same bay (see EN 1176-2).		N/A
	For suspended ropes of between 2 m and 4 m in length, the distance between ropes fixed at one end and other parts of equipment shall be not less than 1 m.		N/A
	The rope diameter shall be between 25 mm and 45 mm.		N/A
4.2.12.2	Ropes fixed at both ends (climbing ropes)		N/A
	For a rope fixed at both ends, typically for climbing up and not part of a larger net structure, it shall not be possible to make a loop in the rope that is wide enough to let probe C pass through (see Figure D.1) nor probe E (see Figure D.1) pass through.		N/A
	The rope diameter shall meet the grip requirements given in 4.2.4.6.		N/A
	When a rope fixed at both ends is used in conjunction with another element, care shall be taken not to create entrapment situations, see 4.2.7.2.		N/A
4.2.12.3	Wire ropes		N/A
	Wire ropes shall be unstressed and shall be made from galvanized or corrosion-resistant wire.		N/A
	Ferrules shall conform to EN 13411-3 and the rope end shall coincide with the edge of the grip.		N/A

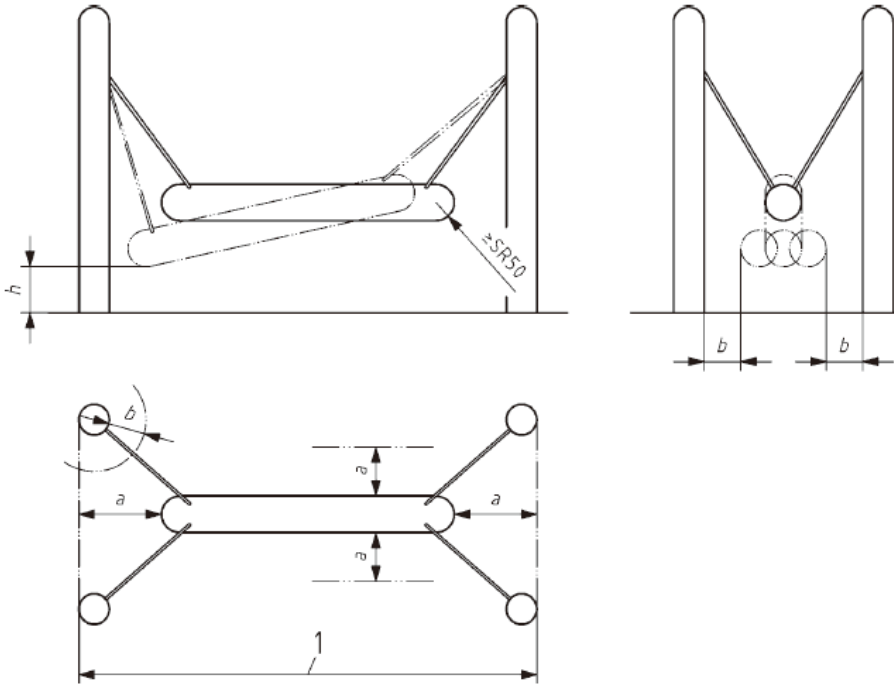
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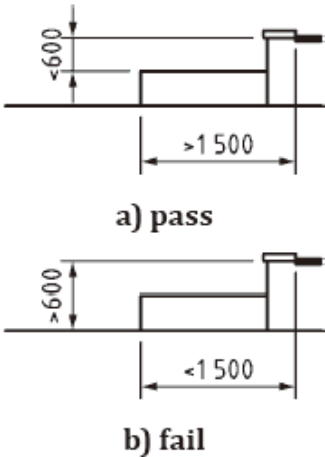
Clause	Requirement - Test	Result - Remark	Verdict
	Wire rope grips shall be utilized in accordance with EN 13411-5. If accessible and the thread ends protrude more than 8 mm, they shall only be used outside the minimum space or shall be covered by suitable means.		N/A
	The ends of the turnbuckles shall be closed (see Figure 23) and shall be made from corrosion-resistant material. It shall not be possible to undo turnbuckles without a tool.		N/A
	 Key 1 ferrule 2 turnbuckle 3 wire rope grips Figure 23 — Example of ferrules, turnbuckles and wire rope grips		N/A
4.2.12.4	Sheathed wire ropes		N/A
	When sheathed wire ropes are used for climbing ropes, climbing nets, hanging ropes and the like, each strand shall be sheathed with yarn made from synthetic or natural fibres. The sheath shall not contain monofilament.		N/A
4.2.12.5	Fibre ropes (textile type) Fibre ropes shall either: a) conform to EN ISO 9554 or EN ISO 2307; or b) the manufacturer shall supply a work certificate stating the material used and the safe working load.		N/A
	In the case of climbing ropes, climbing nets, hanging ropes and the like, the strands shall have a soft and non-slip covering, e.g. hemp or equivalent material.		N/A
	Monofilament plastic ropes or ropes made from similar materials shall not be used.		N/A

EN 1176-1:2017+A1:2023

Clause	Requirement - Test	Result - Remark	Verdict
4.2.13	Chains Chains for playground equipment shall conform to the dimensional requirements in EN 818-2:1996+A1:2008, Table 2 or EN 818-3:1999+A1:2008, Table 2 as a minimum and, when tested in accordance with D.5, shall conform to one of the following requirements: a) the 8,6 mm rod (see Figure D.13) shall not pass through the minimum cross-section of the chain opening, b) if the 8,6 mm finger rod passes through the opening, the 12 mm rod (see Figure D.13) shall also pass through the opening.		N/A
4.2.14	Foundations		P
	The foundations shall be designed such that they do not present a hazard (tripping, impact). In loose fill surfacing (e.g. sand), foundations shall be installed or laid in accordance with one of the following: a) so that pedestals, footings and fixing elements on the equipment are at least 400 mm below the playing surface or; b) if the tops of the foundations are as shown in Figure 24 at least 200 mm below the surfacing; or c) so that they are covered by items of equipment or equipment parts (e.g. central foundation of a roundabout).		P
	Any parts that protrude from the foundations such as the ends of screws shall be at least 400 mm below the playing surface unless they are effectively covered and finished as described in 4.2.5.		P
	Additional measures should be taken for equipment in which the stability depends on only one cross-section. Foundations of one post equipment shall be accessible for periodic inspection.		P
	The choice and installation of impact attenuating surfacing should be carefully planned in order to allow for inspections and if access to the foundations is required. For example, for synthetic surfacing, this may require the surfacing to be cut-back and re-laid.		P

Clause	Requirement - Test	Result - Remark	Verdict
	 Key 1 post 2 playing surface 3 foundation 4 basic level mark 5 top of foundation Figure 24 — Example of foundations		P
4.2.15	Heavy suspended rigid beams		P
	Rigid suspended beams are deemed heavy when they have a mass of 25 kg or more.		P
	There shall be a ground clearance of at least 400 mm underneath heavy suspended rigid beams, (see Figure 25).		P
	The ground clearance is measured as the distance between the lowest point of the lower edge of the heavy suspended rigid beam and the surface below.		P
	The heavy suspended rigid beam shall be so constructed that all changes in the profile of the beam shall have a radius of at least 50 mm.		P
	The range of movement (a in Figure 25) shall not exceed 300 mm and shall not go beyond the support posts.		P
	The distance between the support posts and the heavy suspended rigid beam (b) shall not be less than 230 mm throughout its full range of movement.		P

Clause	Requirement - Test	Result - Remark	Verdict
	 Key <i>a</i> range of movement <i>b</i> free space towards standing construction, ≥ 230 mm <i>h</i> ground clearance <i>1</i> maximum deflection Figure 25 — Example of a heavy suspended rigid beam		P
4.2.16	Bouncing facilities		P
4.2.16.1	General		P
	A bouncing facility with a suspension bed smaller than 1,44 m ² is considered as a small bouncing facility.		P
	The extent of the falling space of a suspension bed of a small bouncing facility shall be 1 500 mm. The extent of the falling space of a suspension bed of a large bouncing facility shall be 2 000 mm. When a suspension bed gives a user a predetermined jumping direction to outside of the suspension bed, the extent of the impact area to that direction shall be at least 3 000 mm.		P
	Unprotected edges within the falling space that the user can hit shall be rounded with at least 20 mm radius.		P
	The maximum allowed height of any point of the suspension bed is 600 mm measured from the surrounding ground or platform of the playground equipment 1 500 mm away from that specific point (see Figure 26).		P

Clause	Requirement - Test	Result - Remark	Verdict
	 a) pass b) fail Figure 26 — Acceptable and not acceptable solutions due to height of the suspension bed		P
	In case of failure of the suspension bed or its supports (spring, rubber band etc.) the user shall not fall more than 600 mm unless the impact area below has an adequate level of impact attenuation equivalent to the free height of fall of the suspension bed. There shall be no dangerous obstacles under or around the suspension bed, onto which a user could fall or otherwise be injured.		P
	For a bouncing facility the extent of the free space shall be 1 500 mm measured horizontally from any point at the perimeter and 3 500 mm above the suspension bed.		P
	During a physical weight test according to 4.2.2, the minimum ground clearance shall be ≥ 100 mm.		P
	During a dynamic physical test according to D.6 the rebound effect of the bouncing facility shall not be more than 700 mm above the suspension bed.		P
	Consideration shall be given to the design of the equipment and to the layout of the surrounding area in order to avoid jumping from surrounding installations (other than the enclosure) onto the suspension bed.		P
	Suspension beds made out of textile shall maintain 80 % of their initial tensile strength according to EN ISO 13934-1 after exposure to light and UV, according to EN ISO 4892-3, for a minimum period of 400 h.		P

Clause	Requirement - Test	Result - Remark	Verdict
	Large bouncing facilities shall have a sufficient ground clearance under the suspension bed. During the physical test according to 4.2.2, the clearance below the suspension bed shall remain greater than 230 mm. If this cannot be achieved, access under the suspension bed shall be prevented in a way that the test probe E cannot pass any opening leading under the suspension bed.		P
	Openings in the suspension bed shall not be greater than 30 mm measured in the smallest direction.		P
	Under a static weight of 69,5 kg applied to the middle of the suspension bed, any opening shall not allow passage of the test probe E.		P
	Access to the space under the suspension bed shall be provided for cleaning.		P
4.2.16.2	Enclosures of bouncing facilities		P
	Where enclosures are provided, a risk assessment shall be made before allowing an enclosure for bouncing facilities in unsupervised settings. An enclosure, where climbing is not encouraged and with a minimum height of 1 800 mm, may be introduced to reduce the falling space or to prevent users from falling from the suspension bed. Sections of the enclosure above the height of 2 400 mm shall be unclimbable.		P
	The enclosure shall withstand a horizontal force of (800 ± 50) N applied to the centre of each enclosure section.		P
	Net yarns shall have a minimum diameter of 2 mm to reduce the risk of cutting fingers of users.		P
5	Verification of compliance and reports		—
5.1	General		P
	Unless otherwise specified the requirements of Clause 4 shall be verified by measurement, visual examination or practical tests.		P
	Before testing, the equipment shall be assembled in accordance with the manufacturer's instructions into a condition similar to its position of use.		P

EN 1176-1:2017+A1:2023

Clause	Requirement - Test	Result - Remark	Verdict
	Test reports shall include the following: a) number and date of this European Standard, i.e. EN 1176-1:2017; b) details of the equipment tested; c) details of the condition of the equipment including any defects observed before the test; d) details of any change in the condition of the equipment observed after the tests; e) test result.		P
5.2	Confirming the adequate level of impact attenuation after installation of impact attenuating surfacing		P
	As there are significant regional variations in the provision and management of impact attenuating surfacing, it is recommended that requirements are given at a national level. If no requirements are given at national level, Annex H shall be used as it gives requirements to confirm the adequate level of impact attenuation after installation of the impact attenuating surfacing.		P
6	Information to be provided by the manufacturer/supplier		—
6.1	Information to be provided by the manufacturer/supplier of playground equipment		P
6.1.1	General product information		P
	The manufacturer/supplier shall provide instructions in the appropriate language(s) of the country in which the equipment is to be installed and used. The instructions shall conform to the following:		P
	a) instructions shall be printed legibly and in a simple form;		P
	b) illustrations shall be used wherever possible; and		P
	c) instructions shall include at least the following information: 1) details of the installation, operation, inspection and maintenance of the equipment; 2) clause or note drawing the operator's attention to the need to increase inspection/ maintenance if the equipment is subject to heavy use and/or the stability of the equipment relies on one post; 3) advice to take care, in relation to specific hazards to children, due to incomplete installation or dismantling, or during maintenance.		P
	The manufacturer/supplier should supply copies of test reports to purchasers upon request.		P

EN 1176-1:2017+A1:2023

Clause	Requirement - Test	Result - Remark	Verdict
6.1.2	Pre-information		P
	The manufacturer/supplier shall provide information concerning the safety of the installation prior to the acceptance of the order, e.g. a catalogue data sheet.		P
	This information shall include at least the following, where relevant:		P
	a) minimum space;		P
	b) surfacing requirements (including free height of fall and extent of surfacing);		P
	c) details of the foundations and any specific provisions for their accessibility during inspection and maintenance;		P
	d) overall dimensions of the largest part(s);		P
	e) mass of the heaviest part/section in kilograms;		P
	f) guidance regarding the target user group for the equipment;		P
	g) if the equipment is intended only for indoor use or under supervised conditions;		N/A
	h) availability of spare parts; and		P
	i) certification of conformity with this European Standard.		P
6.1.3	Installation information		P
	The manufacturer/supplier shall supply an equipment delivery parts list with the equipment.		P
	The manufacturer/supplier shall supply installation instructions for the correct assembly, erection and placing of the equipment.		P
	This information shall include at least the following:		P
	a) minimum space requirements and safety clearances;		P
	b) equipment and parts identification;		P
	c) erection sequence (assembly instruction and installation details);		P
	d) matching aids where necessary, e.g. signs on parts accompanied by appropriate instructions;		P
	e) need for any special tools, lifting devices, templates or other assembly aids to be used and any precautionary measures to be taken. Where necessary, torque values should be given;		P
	f) constructional space required to install the item of equipment;		P

Clause	Requirement - Test	Result - Remark	Verdict
	g) orientation, where necessary, in relation to sun and wind;		P
	h) details of the required foundation, under normal conditions, anchorage in the ground and the design and location of the foundation (with a note that care should be taken concerning abnormal conditions);		P
	i) details of the foundations and any specific provisions for their accessibility during inspection and maintenance;		P
	j) specific instructions if a particular landscape profile is necessary for safe operation, e.g. falling height;		P
	k) free height of fall (for impact attenuation surfacing needs);		P
	l) need for and details of the application of any painting or treatment: and		P
	m) removal of assembly aids before the equipment is used.		P
	Drawings and diagrams shall clearly specify the principal dimensions of the equipment and the relevant space, heights and areas required for installation.		P
	The manufacturer/supplier shall supply the details necessary for inspection of the playground equipment prior to its first use.		P
6.1.4	Inspection and maintenance information		P
6.1.4.1	The manufacturer/supplier shall provide instructions for maintenance (marked with the number of this standard), which shall include a statement that the frequency of inspection will vary with the type of equipment, e.g. equipment where the stability relies on one post, or materials used and other factors, e.g. heavy use, levels of vandalism, coastal location, air pollution, age of equipment.		P
	The manufacturer/supplier shall also provide drawings and diagrams necessary for maintenance, inspection and checking of correct operation and, when appropriate, repair of the equipment.		P
6.1.4.2	The instructions shall specify the frequency with which the equipment or its components should be inspected or maintained and shall include guidance on the following, where relevant:		P
	a) routine visual inspection (see 3.26);		P

Clause	Requirement - Test	Result - Remark	Verdict
	b) operational inspection (see 3.27); This should be done every 1 to 3 months, or as indicated by the manufacturer's instruction. Special attention should be given to 'sealed-for-life' parts and equipment where stability relies on one post.		P
	c) annual main inspection (see 3.28). Special attention should be given to 'sealed-for-life' parts and equipment where stability relies on one post.		P
6.1.4.3	The instructions shall also specify the following:		P
	a) if necessary, the servicing points and methods of servicing, e.g. lubrication, tightening of bolts, re-tensioning of ropes;		P
	b) that replacement parts shall conform to manufacturer's specifications;		P
	c) if special disposal treatment is required for some equipment or parts;		N/A
	d) identification of spare parts;		P
	e) any additional measures to be taken during the run-in period, e.g. tightening of fastenings, tensioning of ropes;		P
	f) the need to keep drainage holes clear;		P
	g) that surfacing shall be maintained: in particular, the levels of loose fill materials.		P
	h) that GRP (glass-reinforced plastics) should be replaced or repaired before the glass fibres become exposed through wear or damage. This particularly applies to slides.		P
6.2	Information to be provided by the manufacturer or supplier of impact attenuating surfacing		P
6.2.1	Pre-information for impact attenuating surfacing		P
	The manufacturer/supplier shall provide the following information concerning the performance of the impact attenuating surfacing prior to the acceptance of the order (does not apply to turf/topsoil):		P
	a) where particulate materials that are included in Table 4 are specified, clear information about the type of material (see Table 4) and the depth of the layer to be used shall be provided, or, if not included in Table 4, the critical fall height of the surfacing as tested in accordance with EN 1177, together with copies of test reports or certificates;		P

Clause	Requirement - Test	Result - Remark	Verdict
	b) outline of the installation procedure, climatic limitations on installation and other precautions required;		P
	c) procedures to be followed for the operation, inspection and maintenance of the surfacing;		P
	d) factors that could affect the properties of the impact attenuating surfacing in service;		P
	e) period for which the adequate level of impact attenuation is expected with adequate maintenance;		P
	f) how the material allows for routine inspection of equipment foundations, particularly where one-post equipment is to be surrounded by wet pour/poured-in place material;		P
	g) whether the material is intended for indoor or outdoor use, or both;		P
	h) availability of spare parts (if any) and methods to be used for the repair of localized areas of damage;		P
	i) compliance of impact attenuating surfacing materials with 4.1 (namely 4.1.6), if applicable;		P
	j) a note drawing the operator's attention to the need to increase the frequency of inspection/maintenance if the impact attenuating surfacing is subject to heavy use and/or any conditions that could reduce the impact attenuation (e.g. degradation of organic materials or vandalism as well as influence of ageing due to UV exposure);		P
	k) a warning to take care, in relation to specific hazards to children, during incomplete installation or during maintenance.		P
6.2.2	Installation information for impact attenuating surfacing		P
	The manufacturer/supplier of playground surfacing shall provide full and detailed installation instructions in the appropriate language(s) of the country in which the surfacing is to be installed and used. These instructions shall conform to the following:		P
	a) instructions shall be printed legibly and in a simple form;		P
	b) illustrations shall be used wherever possible; and		P

Clause	Requirement - Test	Result - Remark	Verdict
	c) instructions shall include at least the following information: 1) complete procedure for the preparation of the ground, substrate, drainage, etc.; 2) assembly and installation details for the surfacing and equipment required to ensure that the adequate level of impact attenuation is provided; 3) how to deal with edges, perimeters and junctions with other materials, if necessary; 4) any weather limitations during the installation and any subsequent weather protection required; 5) specific instructions if a particular landscape profile is necessary for safe installation and performance; 6) conditions to meet impact attenuation surfacing needs according to the free height of fall of the equipment.		P
	The manufacturer/supplier shall supply the details necessary for inspection of the playground impact attenuating surfacing prior to its first use.		P
6.2.3	Inspection and maintenance information for impact attenuating surfacing		P
6.2.3.1	The manufacturer/supplier of playground surfacing shall provide instructions for maintenance and inspection procedures, e.g. removal of contaminants, with a statement that the frequency of inspection will vary with the type of impact attenuating surfacing material used and its surroundings, e.g. access/exit areas, and other factors, e.g. heavy use, levels of vandalism, coastal location, air pollution, ageing of material.		P
6.2.3.2	Maintenance instructions shall provide all information necessary for retaining the required performance (e.g. minimum depth of particulate impact attenuating surfacing) and, when appropriate, repair or refill of the impact attenuating surfacing. For all types of impact attenuating surfacing particular attention shall be given to the effects of ageing (exposure to UV, heat, cold), pollution, causing degradation or the loss of impact attenuating properties.		P
	The instructions shall also specify the following:		P
	a) that replacement parts shall conform to manufacturer's specifications;		P
	b) if special disposal treatment is required for the material or parts;		N/A

EN 1176-1:2017+A1:2023

Clause	Requirement - Test	Result - Remark	Verdict
	c) the identification of spare parts (connectors, slabs, ...);		P
	d) any additional measures to be taken, specifically methods of cleaning, disinfecting, repairing etc.;		P
	e) the need to keep drainage system functioning;		P
	f) that surfacing shall be maintained: in particular, the depth of loose fill materials.		P
6.2.4	Identification of impact attenuating playground surfacing		P
	The surfacing shall be labelled by the manufacturer or supplier, or written information shall be provided for its identification and performance.		P
7	Marking		—
7.1	Equipment identification		P
	The equipment shall be marked legibly, permanently and in a position visible from ground level with at least the following:		P
	a) name and address of manufacturer or authorized representative;		P
	b) equipment reference and year of manufacture; and		P
	c) the number and date of this European Standard, i.e. EN 1176-1:2017.		P
7.2	Basic level mark		P
	Equipment shall be marked legibly and permanently with the basic level mark (see Figure 24).		P
Annex A	Loads		—
A.1	Permanent loads		P
A.1.1	General		P
A.1.2	Loads created by self-weight		P
A.1.3	Pre-stressing loads		P
A.1.4	Mass of water		N/A
A.2	Variable loads		P
A.2.1	General		P
A.2.2	User loads		P
A.2.3	Snow loads		N/A
A.2.4	Wind loads		N/A
A.2.5	Temperature loads		P

EN 1176-1:2017+A1:2023

Clause	Requirement - Test	Result - Remark	Verdict
A.2.6	Specific loads		P
A.2.6.1	Swing seats		P
A.2.6.2	Carousels		N/A
A.2.6.3	Cableways		N/A
A.2.6.4	Spatial networks		N/A
A.2.6.5	Access ladders and stairs		N/A
A.2.6.6	Barriers and guard rails		N/A
A.2.6.7	Seats		N/A
A.2.6.8	Lateral protection of slides		P
A.3	Number of users on the equipment		P
A.3.1	General		P
A.3.2	Number of users on a point		P
A.3.3	Number of users on line type elements		P
A.3.4	Number of users on an area		P
A.3.5	Number of users in a volume		P
Annex B	Method of calculation of structural integrity		—
B.1	General principles: Limit state		P
B.1.1	Limit state		P
B.1.2	Ultimate limit state		P
B.1.3	Serviceability limit state		P
B.2	Load combinations for static analysis		P
B.3	Worked example of the calculation of user loads (without safety factors)		P
B.3.1	General		P
B.3.2	Platform		P
B.3.3	Barrier		P
B.3.4	Ladder		P
B.3.5	Complete structure		P
B.4	Calculation of forces acting on a swing seat		P
B.5	Worked examples for forces acting on a swing (without safety factors)		P
B.6	Calculation of forces acting on the cable of a cableway		P
B.6.1	General		P
B.6.2	Worked example for forces acting on a cableway (without safety factors)		P
Annex C	Physical testing of structural integrity		—

EN 1176-1:2017+A1:2023

Clause	Requirement - Test	Result - Remark	Verdict
C.1	Pass/fail criteria		P
C.1.1	Load carrying ability		P
C.1.2	Failure		P
C.2	Test load for equipment		P
C.2.1	Load combinations for testing		P
C.2.2	Safety factor for tests on identical series		P
C.2.3	Safety factor for tests on a unique product		P
C.3	Load application		P
C.3.1	Point loads		P
C.3.2	Line loads		P
C.3.3	Area loads		P
Annex D	Test methods for entrapment		—
D.1	General		P
D.2	Head and neck entrapment		P
D.2.1	Completely bound openings		P
D.2.1.1	Apparatus		P
D.2.1.2	Procedure		P
D.2.2	Partially bound and V-shaped openings		P
D.2.2.1	Apparatus		P
D.2.2.2	Procedure		P
D.3	Entrapment of clothing (toggle test)		P
D.3.1	Apparatus		P
D.3.2	Procedure		P
D.3.2.1	Slides		P
D.3.2.2	Fireman's poles		P
D.3.2.3	Roofs		P
D.4	Finger entrapment		P
D.4.1	Apparatus		P
D.4.2	Procedure		P
D.5	Chain openings		P
D.5.1	Apparatus		P
D.5.2	Procedure		P
D.6	Measuring rebound effect of a bouncing facility		P
Annex E	Overview of possible entrapment situations		—
Annex F	Illustrations of calculation of free height of fall (FHF)		—



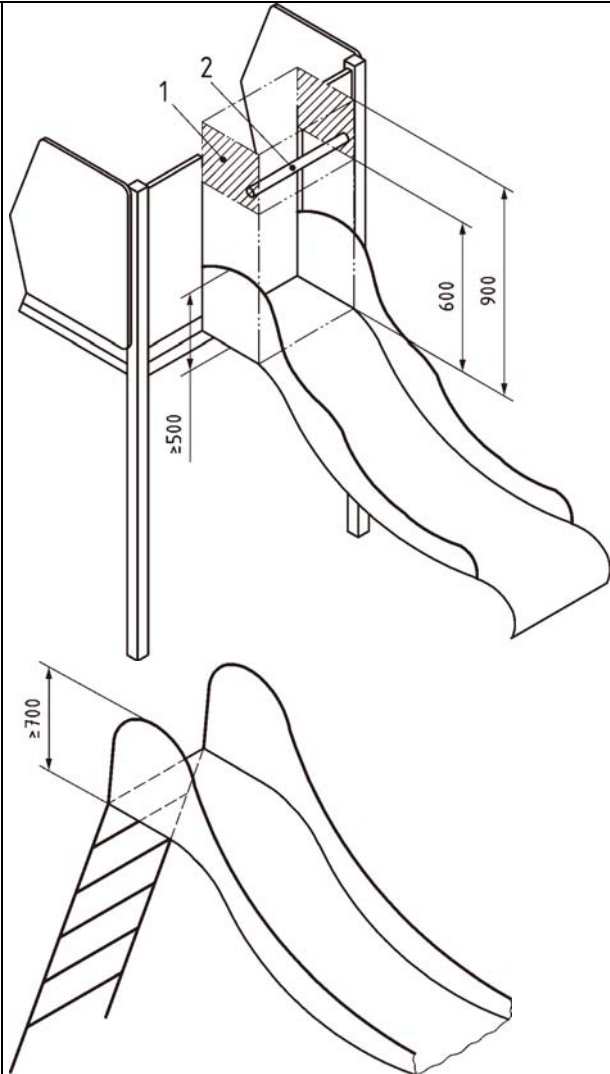
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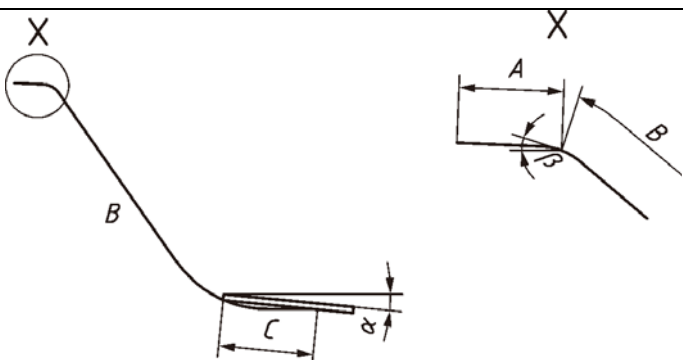
Clause	Requirement - Test	Result - Remark	Verdict
Annex G	Illustration of sieve test		—
Annex H	Procedure for confirming the adequate level of impact attenuation after installation of impact attenuating surfacing		—
Annex I	A-deviations		—
I.1	General		P
I.2	France		P
I.3	Germany		P
I.3.1	General		P
I.3.2	Impact attenuating surfacing		P

EN 1176-3:2017

Clause	Requirement - Test	Result - Remark	Verdict
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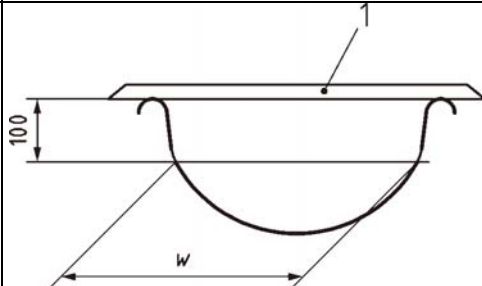
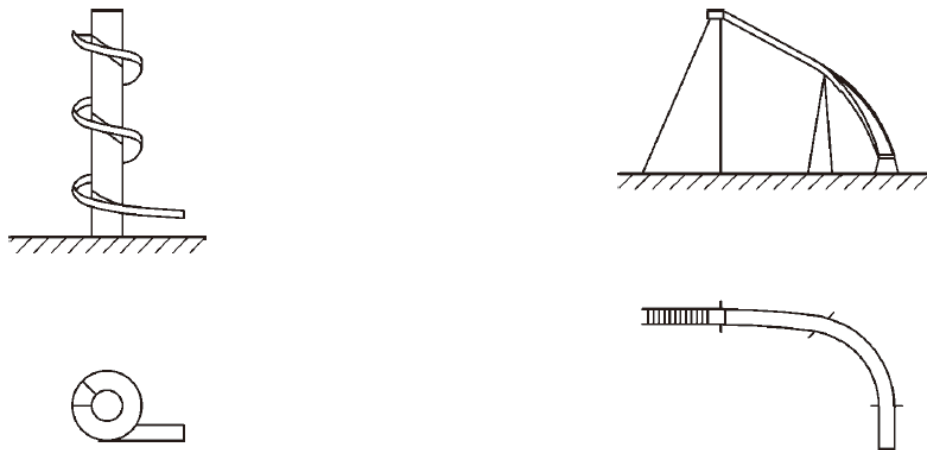
4	Safety requirements		—
4.1	General		P
	Slides shall conform to EN 1176-1 unless otherwise specified in this part of EN 1176.		P
4.2	Access		P
	Access to the starting section shall be by means of an access ladder, stairs, climbing section or device.		P
	In the case of embankment slides, access to the starting section may be gained directly from the mound.		P
	For free-standing slides, the maximum vertical height that the first stairs can reach without a change in direction or offset, by a minimum width of the means of access, shall be 2 500 mm.		P
	Where the starting section of a slide is easily accessible the free height of fall (h) shall be 1 000 mm maximum unless guarding is provided (see 4.3.2).		P
	For all attachment slides with a fall height greater than 1 000 mm, a rail or crossbar across the access opening shall be provided (see Figure 1a)).		P
	The rail or crossbar shall be positioned between the platform guard rail or barrier and the start of the sliding section.		P
	The height of the rail or crossbar shall be between 600 mm and 900 mm above the starting section.		P
	For attachment slides with a starting section or barrier beyond the edge of the platform, the area of the starting section between the rail or crossbar and the platform shall comply with the same requirements as platforms in EN 1176-1.		P

Clause	Requirement + Test	Result - Remark	Verdict
	 b) Example of lateral protection of a starting section of a free-standing slide Key 1 zone representing all the possible positions of a rail or crossbar 2 crossbar Figure 1 — Examples of lateral protection		P
4.3	Starting section		P
4.3.1	Length and angle		P
	Each slide shall have a starting section of at least 350 mm length. The starting section shall have a downward slope tolerance from 0° to 5° in the direction of the sliding section, the measurement being made at the centreline of the starting section.	400mm	P
	For attachment slides the platform may be used as a starting section.		P

Clause	Requirement + Test	Result - Remark	Verdict
	 Key A starting section measured along the surface of the slide B sliding section measured along the surface of the slide C run-out section measured along the surface of the slide α maximum declination of the run-out section β maximum declination of the starting section Figure 2 — Illustration of the position of the sections of a slide		P
4.3.2	Guarding section		P
	The starting section shall have a guarding section conforming to the barrier requirements of EN 1176-1 when one of the following applies: — the length of the starting section is more than 400 mm; — the starting section is easily accessible and has a free height of fall of more than 1 000 mm; — the free height of fall of the starting section is more than 2 000 mm.	There's a fence around it on the both sides.	P
	The guarding section shall either be a continuation of the lateral protection or be outside the plane of the lateral protection.		P
	When the guarding section is separate from or outside the plane of the lateral protection, the maximum vertical or horizontal offset shall be less than 89 mm.		N/A
	For attachment slides, the opening in the barrier shall be the same as the width of the starting section or guarding section.		P
	For attachment slides where all or part of the starting section is beyond the platform edge, the guarding section shall have a height of at least 500 mm at some point (see Figure 1a)).		P
	For attachment slides where the platform is used as the entire starting section, the requirements for protection against falling in EN 1176-1:2017, 4.2.4, apply.		P
	For free-standing slides, the guarding section shall have a height of at least that required for platforms at one point (see Figure 1b)).		P
4.3.3	Width		P

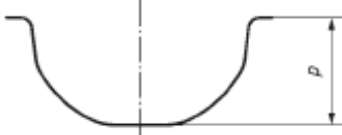
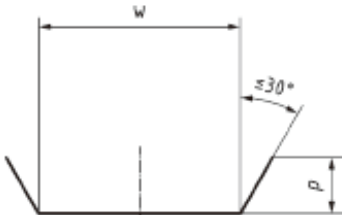
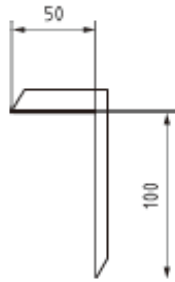
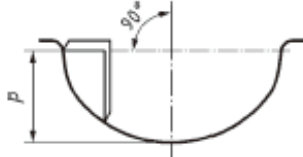
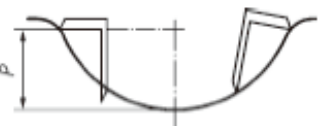
EN 1176-3:2017

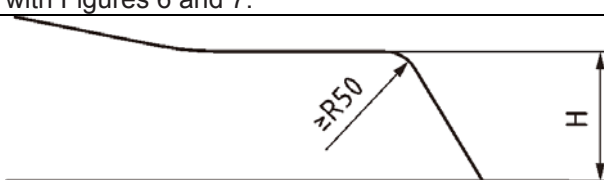
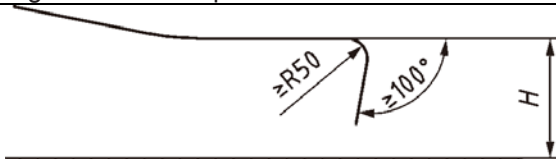
Clause	Requirement + Test	Result - Remark	Verdict
	The width of the starting section shall be equal to that of the sliding section. The starting section shall be designed so that it is aligned with the direction of the initial sliding movement. If the starting section is a platform or the extension of a platform the starting section may be greater in width than the sliding section.		P
4.3.4	Lateral protection (sides)		P
	The lateral protection of the starting section shall be a continuous unbroken extension of the lateral protection of the sliding section.		P
	The construction of the lateral protection may be from multiple components. Any joints should be free from entrapment and not present a hazard to users.		P
	Any variations in the angle of declination of the top of the lateral protection in the sliding direction shall be made with a radius of at least 50 mm at some point.		P
4.4	Sliding section		P
4.4.1	Length and angle		P
	The length of the initial straight sliding section shall not exceed 7 000 mm.		P
	The length of the second and subsequent straight sliding sections after a bend shall not exceed 5 000 mm.		P
	The angle of declination to the horizontal of the sliding section shall not exceed 60° at any point and shall not exceed an average of 40°. The declination of the sliding section shall be measured from the centreline.		P
	If the changes in angle of declination of slides are greater than 15°, other than for the transitional part between the starting section and the sliding section, the angle shall have a radius as follows: a) for the initial 2 000 mm change in height, at least 450 mm; and b) for the remainder of the slide, at least 1 000 mm.		N/A
4.4.2	Width		P
	When measured in accordance with Figure 3 and Figure 5b) (for flat bed slides) open and straight, non-tunnel slides with sliding sections exceeding 1 500 mm in length shall have a width (w) of the sliding section of either: a) less than 700 mm; or b) more than 950 mm.		P
	Each track of a multi-track slide shall have a width of less than 700 mm.		P

Clause	Requirement + Test	Result - Remark	Verdict
	When measured in accordance with Figure 3, helical or curved slides (see Figure 4 for examples) shall have a width (w) of the sliding section of less than 700 mm.		P
	 Key 1 rule w width of sliding section Figure 3 — Measurement of width of sliding section		P
	 a) Helical slide b) Curved slide Figure 4 — Typical examples of helical and curved slides		P
4.4.3	Sides and profile of the slide		P
	The sliding section shall have solid lateral protection of heights (p) (see Figure 5a) and Figure 5b)) in accordance with Table 1, when measured perpendicular to the sliding section surface.		P
	In the case of flat-sided slides, the sides shall not tip out from the vertical by more than 30° (see Figure 5b)).		P
	In the case of curved profile sided slides, the profile of the sliding section shall be designed in such a way that the short arm of the template (see Figure 5c)) remains horizontal when placed with the long arm perpendicular to the sliding surface at the highest internal point of the inner face of the side (see Figures 5d)) and Figure 5e)).		P

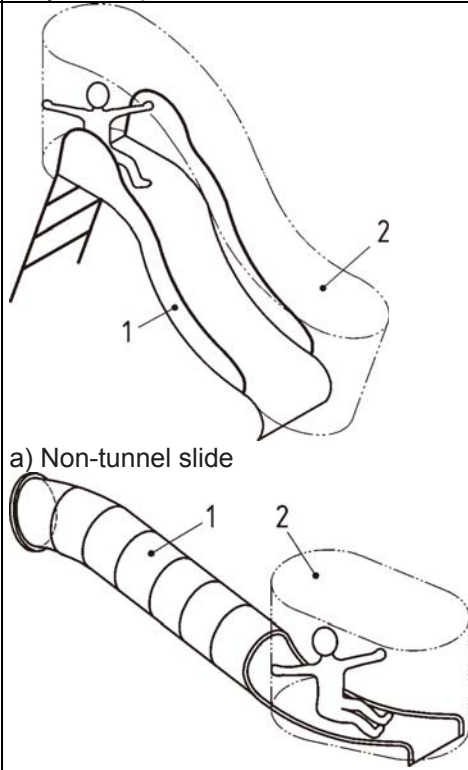
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Clause	Requirement + Test	Result - Remark	Verdict														
	<table><tr><th colspan="2">Table 1 — Height of lateral protection</th></tr><tr><th>Free height of fall <i>h</i></th><th>Height of lateral protection <i>p</i></th></tr><tr><td>≤ 1 200</td><td>≥ 100</td></tr><tr><td>> 1 200 ≤ 2 500</td><td>≥ 150</td></tr><tr><td>> 2 500 height</td><td>≥ 500</td></tr><tr><td>Easily accessible (see EN 1176–1:2017, 3.24)</td><td>≥ 500</td></tr><tr><td>> 2 000</td><td></td></tr></table>		Table 1 — Height of lateral protection		Free height of fall <i>h</i>	Height of lateral protection <i>p</i>	≤ 1 200	≥ 100	> 1 200 ≤ 2 500	≥ 150	> 2 500 height	≥ 500	Easily accessible (see EN 1176–1:2017, 3.24)	≥ 500	> 2 000		P
Table 1 — Height of lateral protection																	
Free height of fall <i>h</i>	Height of lateral protection <i>p</i>																
≤ 1 200	≥ 100																
> 1 200 ≤ 2 500	≥ 150																
> 2 500 height	≥ 500																
Easily accessible (see EN 1176–1:2017, 3.24)	≥ 500																
> 2 000																	
	The sides shall be perpendicular to the sliding surface or curved or angled at an obtuse angle to the sliding surface.		P														
	The edges of the sides shall be rounded with a radius of at least 3 mm or provided with a means for protection from injury to the user.		P														
	In the case of multi-track slides, the track divider shall have a minimum height of 100 mm and shall be rounded with a radius of at least 3 mm. Track dividers shall be provided for the full length of the sliding section as a minimum.	The height were 2000mm, 2800mm, 1800mm, 1500mm, 3500mm	P														

Clause	Requirement + Test	Result - Remark	Verdict
	 a) Measurement of height of sides of curved profile sliding section  b) Measurement of width, height and inclination of sides of flat sided sliding section Dimensions in millimetres  c) Template for determining profile of curved profile sliding section  d) Application of template to curved profile sliding — Pass condition  e) Application of template to curved profile sliding section — Fail condition Key P height of lateral protection w width Figure 5 — Measuring of slide profile		P
4.5	Run-out section		P
	All slides shall include a run-out section, either Type 1, where the run-out section is short with a long impact area, or Type 2, where the run-out section is long with a short impact area.	The run-out section long 8.5m, 8.5m, 8.5m, 6.1m, 3.0m,	P
	The declination of the run-out section shall be 10° maximum (for Type 1) or 5° maximum (for Type 2) (see Figure 2). The minimum length of the run-out section shall be in accordance with Table 2.		P

Clause	Requirement + Test	Result - Remark	Verdict																												
	The height (H) of the end of the run-out section (see Figures 6 and 7) above the ground shall be as given in Table 2.	The height (H) of the end of the run-out section were 0.05m	P																												
	It can be dangerous if users stop on the sliding section. Slides should be designed to prevent the user stopping unintentionally before reaching the run-out section.		P																												
	Table 2 — Length and height of run-out section <table border="1"> <thead> <tr> <th>Length of sliding section <i>B</i></th><th colspan="2">Minimum length of run-out section <i>C</i></th><th>Height of the end of run-out section <i>H</i></th></tr> <tr> <th></th><th>Type 1 $\alpha = 10^\circ \text{ max}$</th><th>Type 2 $\alpha = 5^\circ \text{ max}$</th><th></th></tr> </thead> <tbody> <tr> <td>—</td><td colspan="2">300</td><td>—</td></tr> <tr> <td>$\leq 1\,500$</td><td colspan="2">> 500 with end of slide in accordance with Figures 6 or 7</td><td>≤ 200</td></tr> <tr> <td>$> 1\,500$</td><td colspan="2">$> 0,3 \times \text{length of sliding section, B}$</td><td>$\leq 350$</td></tr> <tr> <td>$\leq 7\,500$</td><td colspan="2">$> 1\,500$</td><td></td></tr> <tr> <td>$> 7\,500$</td><td colspan="2">With end of slide in accordance with Figures 6 or 7</td><td></td></tr> </tbody> </table>	Length of sliding section <i>B</i>	Minimum length of run-out section <i>C</i>		Height of the end of run-out section <i>H</i>		Type 1 $\alpha = 10^\circ \text{ max}$	Type 2 $\alpha = 5^\circ \text{ max}$		—	300		—	$\leq 1\,500$	> 500 with end of slide in accordance with Figures 6 or 7		≤ 200	$> 1\,500$	$> 0,3 \times \text{length of sliding section, B}$		≤ 350	$\leq 7\,500$	$> 1\,500$			$> 7\,500$	With end of slide in accordance with Figures 6 or 7				P
Length of sliding section <i>B</i>	Minimum length of run-out section <i>C</i>		Height of the end of run-out section <i>H</i>																												
	Type 1 $\alpha = 10^\circ \text{ max}$	Type 2 $\alpha = 5^\circ \text{ max}$																													
—	300		—																												
$\leq 1\,500$	> 500 with end of slide in accordance with Figures 6 or 7		≤ 200																												
$> 1\,500$	$> 0,3 \times \text{length of sliding section, B}$		≤ 350																												
$\leq 7\,500$	$> 1\,500$																														
$> 7\,500$	With end of slide in accordance with Figures 6 or 7																														
	The end of type 1 slide run-outs shall turn down into the ground with a radius of at least 50 mm or reverse at an angle of at least 100° in accordance with Figures 6 and 7.		P																												
	 Key H height of the end of slide run-out Figure 6 — Example of continuation of the end of the slide to the ground		P																												
	 Key H height of the end of slide run-out Figure 7 — Example of a slide ending above the ground		P																												
4.6	Surface of the slide		P																												
	The design of slides and accessible structures around them shall be such that no part of clothes can become trapped (see EN 1176-1:2017, D.3).		P																												
	The surface of the slide length and of the lateral protection (sides) should be manufactured in such a way as to obviate any alterations likely to cause injury after exposure to weathering or other stresses arising during use.		P																												

EN 1176-3:2017

Clause	Requirement + Test	Result - Remark	Verdict
	If the slide surface is constructed from more than one piece of material it should be fabricated so as to eliminate gaps at the joints so that they inhibit the introduction of sharp objects such as razor blades and splinters. The preferred method of protecting against this problem is by manufacturing one piece slide surfaces.		N/A
4.7	Free space		P
	The free space starts at the end of the starting section and finishes at the end of the run-out section (see Figure 8). Certain slide features, e.g. rail or crossbar, hoods or similar, may be present in the free space as they provide additional safety. If present, any such features shall conform to the relevant requirements in EN 1176-1, e.g. entrapment.		P
	Central supporting posts on spiral slides may be used in the free space.		P
	For open spiral slides, the height of the free space shall be 1 000 mm minimum (see EN 1176-1:2017, 4.2.8.2.3).		P
	In the case of multi-track slides, the free spaces may overlap		P
	 a) Non-tunnel slide b) Tunnel slide Key 1 space occupied by the equipment 2 free space Figure 8 — Examples of the free space of slide		P

EN 1176-3:2017

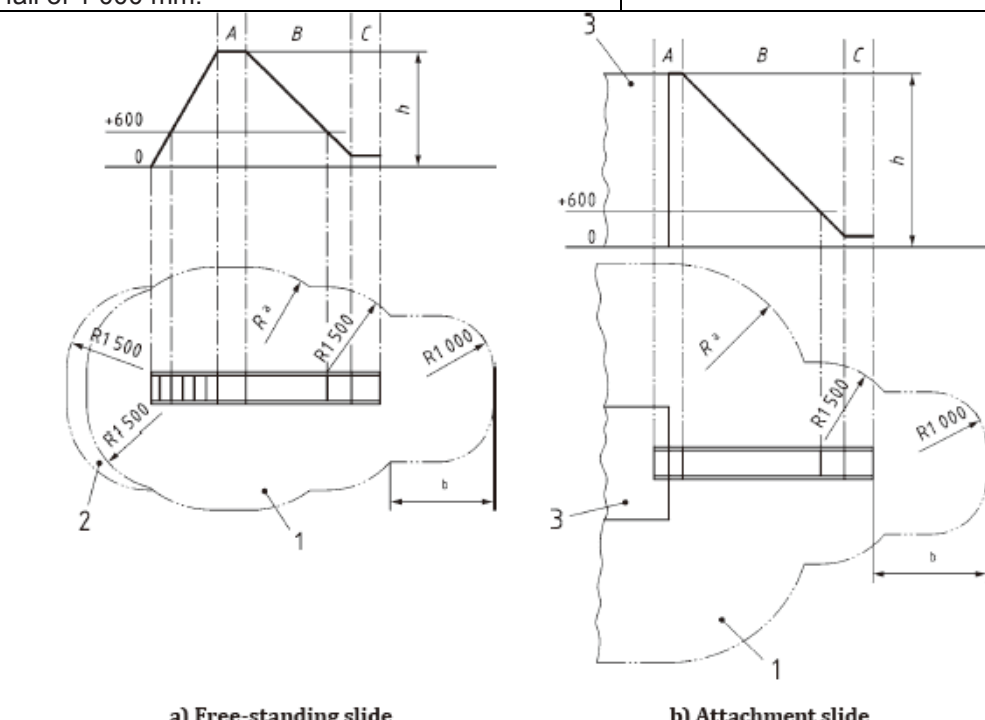
Clause	Requirement + Test	Result - Remark	Verdict
4.8	Impact area		P
	Different to the requirements given in EN 1176-1, the impact area shall be provided to a distance of at least 1 000 mm from the outer edge of the run-out section of the slide. End corners can be rounded off with a radius of maximum 1 000 mm (see Figure 9).		P
	The impact area for type 1 and a sliding section less than 1 500 mm shall be provided to a distance of at least 1 500 mm beyond the required run-out section. If the slide section is more than 1 500 mm, the impact area shall be provided to a distance of at least 2 000 mm beyond the required run-out section and 1 000 mm beyond the end of the required run-out section for type 2 (see Figure 9).		P
	The surface of the impact area around the run-out section shall have an adequate level of impact attenuation at least equivalent to a free height of fall of 1 000 mm.		P
	 a) Free-standing slide b) Attachment slide Key A starting section B sliding section C run-out section 1 impact area 2 impact area surface with no test requirement (see EN 1176-1:2017, 4.2.8.5.3) 3 play structure h free height of fall R_a extent of the falling space depending on free height of fall b depending on the type of run-out section/length sliding section		P

Figure 9 — Impact area of slides

EN 1176-3:2017

Clause	Requirement + Test	Result - Remark	Verdict
	The impact area shall be provided to a distance of at least 1 000 mm around the run-out section.		P
4.9	Tunnel and mixed tunnel slides		P
4.9.1	Clearance		P
	Enclosed sections of tunnel slides shall have a minimum internal height of 750 mm, when measured perpendicular to the sliding surface, and a minimum internal width of 750 mm.		P
4.9.2	Position		P
	Tunnel sections shall start at least at the end of the starting section and shall not extend into the run-out section.		P
	Tunnel sections shall be continuous over their whole length.		P
5	Test reports		—
	Test reports shall be in accordance with EN 1176-1:2017, Clause 5, in addition to the following:		P
	a) test report regarding compliance with this document;		P
	b) proof of conformity with the relevant requirements of EN 1176-1 and EN 1176-3;		P
	c) the number and date of this European Standard, i.e. EN 1176-3:2017.		P
6	Marking		—
	Slides shall be marked in accordance with EN 1176-1:2017, Clause 7.		P
	Marking shall be positioned on the slide in a location that will be visible when erected on site.		P
Annex A	A-deviations		—
Annex B	Background information and rationale regarding limiting straight sliding sections		—



	Requirement test	Result remarks	Verdict
Yellow pearl wool	Flammability	1.2mm/s	P
White pearl wool	Flammability	1.2mm/s	P
Ecru pearl wool	Flammability	1.1mm/s	P
Grey pearl wool	Flammability	1.2mm/s	P
Green pearl wool	Flammability	1.2mm/s	P
Orange pearl wool	Flammability	1.1mm/s	P
Purple pearl wool	Flammability	1.2mm/s	P
Plywood	Flammability	1.3mm/s	P
Transparent plastic board	Flammability	1.2mm/s	P
White tie	Flammability	1.0mm/s	P
Ecru tie	Flammability	1.0mm/s	P
Yellow tie	Flammability	1.0mm/s	P
Grey tie	Flammability	1.0mm/s	P
White net	Flammability	1.3mm/s	P
Black net	Flammability	1.4mm/s	P
Grey net	Flammability	1.3mm/s	P
Ecru net	Flammability	1.3mm/s	P
Orange net	Flammability	1.3mm/s	P
Green plastic sheeting	Flammability	1.3mm/s	P
Pink plastic sheeting	Flammability	1.4mm/s	P
Blue plastic sheeting	Flammability	1.4mm/s	P
Yellow plastic sheeting	Flammability	1.3mm/s	P
Purple plastic sheeting	Flammability	1.3mm/s	P
Aqua plastic sheeting	Flammability	1.3mm/s	P
Orange plastic sheeting	Flammability	1.3mm/s	P
White plastic sheeting	Flammability	1.4mm/s	P
Ecru plastic sheeting	Flammability	1.3mm/s	P
Light blue plastic sheeting	Flammability	1.3mm/s	P
Multicolour sheeting	Flammability	1.4mm/s	P
Blue plastic	Flammability	1.4mm/s	P
Light blue plastic	Flammability	1.5mm/s	P
Green plastic	Flammability	1.4mm/s	P
Yellow plastic	Flammability	1.4mm/s	P
White plastic	Flammability	1.5mm/s	P
Purple plastic	Flammability	1.4mm/s	P
Pink plastic	Flammability	1.4mm/s	P
White plastic	Flammability	1.4mm/s	P
Rope	Flammability	1.2mm/s	P
Rope A	Flammability	1.2mm/s	P
Cloth	Flammability	1.7mm/s	P
White ball	Flammability	1.3mm/s	P
Purple ball	Flammability	1.3mm/s	P
Blue ball	Flammability	1.4mm/s	P
Red ball	Flammability	1.3mm/s	P
Green ball	Flammability	1.3mm/s	P
Transparent ball	Flammability	1.4mm/s	P
Yellow ball	Flammability	1.3mm/s	P
White plastic granule	Flammability	1.4mm/s	P

Yellow pearl wool					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	50.1	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass



Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	5.8	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	63.4	46 000	Pass

White pearl wool					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	41.2	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.2	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	56.5	46 000	Pass

Ecru pearl wool					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	49.8	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	5.8	180 000	Pass



Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	62.1	46 000	Pass

Grey pearl wool					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	63.4	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.8	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	57.2	46 000	Pass

Green pearl wool					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	50.9	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.4	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	56.3	46 000	Pass

Orange pearl wool					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	68.4	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass



Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.3	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	66.5	46 000	Pass

Purple pearl wool					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	51.6	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.3	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	57.0	46 000	Pass

Plywood					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	51.7	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.2	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	52.8	46 000	Pass

Transparent plastic board					
Anxin Product Test Service Co., Ltd			Test report No.: 08.05.23.0385.01		
Floor 2, Yuanjing Building, No.899, Sanyuanli Dadao, Guangzhou			2023-12-26		
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Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	53.6	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.5	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	58.1	46 000	Pass

White tie					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	58.9	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.0	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	59.2	46 000	Pass

Ecru tie					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	59.0	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass



Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.5	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	58.3	46 000	Pass

Yellow tie					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	59.3	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.5	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	60.8	46 000	Pass

Grey tie					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	59.1	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.6	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	62.5	46 000	Pass

White net					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	56.2	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass



Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.4	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	59.8	46 000	Pass

Black net					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	57.1	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.8	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	55.1	46 000	Pass

Grey net					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	63.2	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass



Tin	mg/kg	EN 71-3:2019+A1:2021	6.8	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	64.0	46 000	Pass

Ecru net					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	67.8	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.5	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	59.3	46 000	Pass

Orange net					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	87.4	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	7.0	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	61.5	46 000	Pass

Green plastic sheeting					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	56.0	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass



Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.5	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	58.2	46 000	Pass

Pink plastic sheeting					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	58.4	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.3	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	57.6	46 000	Pass

Blue plastic sheeting					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	59.1	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.4	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	57.3	46 000	Pass



Yellow plastic sheeting					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	57.2	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.4	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	58.3	46 000	Pass

Purple plastic sheeting					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	60.2	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.5	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	57.1	46 000	Pass

Aqua plastic sheeting					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	55.1	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass



Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.6	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	59.8	46 000	Pass

Orange plastic sheeting					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	60.2	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	7.2	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	59.6	46 000	Pass

White plastic sheeting					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	49.3	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	5.9	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	50.1	46 000	Pass

Ecru plastic sheeting					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	57.2	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass



Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.3	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	60.4	46 000	Pass

Light blue plastic sheeting					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	58.2	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.5	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	57.0	46 000	Pass

Multicolour sheeting					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	57.2	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass



Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.5	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	56.3	46 000	Pass

Blue plastic					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	50.8	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.2	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	53.4	46 000	Pass

Light blue plastic					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	51.3	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.1	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	57.5	46 000	Pass

Green plastic					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	63.4	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass



Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.1	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	52.3	46 000	Pass

Yellow plastic					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	51.8	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.1	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	57.4	46 000	Pass

White plastic					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	59.7	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	5.9	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	52.8	46 000	Pass



Purple plastic					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	57.6	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.4	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	56.8	46 000	Pass

Pink plastic					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	60.8	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.2	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	58.7	46 000	Pass

White plastic					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	63.1	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass



Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.0	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	57.8	46 000	Pass

Rope					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	51.5	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.1	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	50.2	46 000	Pass

Rope A					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	52.6	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.1	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	51.8	46 000	Pass

Cloth					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	56.3	5 625	Pass



Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.1	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	57.5	46 000	Pass

White ball					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	56.4	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.2	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	58.1	46 000	Pass

Purple ball					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	56.7	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass



Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.2	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	57.4	46 000	Pass

Blue ball					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	51.8	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.6	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	54.0	46 000	Pass

Red ball					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	56.4	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.3	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	54.0	46 000	Pass

Green ball					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	58.4	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass



Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.1	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	56.2	46 000	Pass

Transparent ball					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	58.6	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.4	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	51.8	46 000	Pass

Yellow ball					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	57.8	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	6.3	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass



Zinc	mg/kg	EN 71-3:2019+A1:2021	52.9	46 000	Pass
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White plastic granule					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	50.1	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	N.D.	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	N.D.	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	5.8	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	51.5	46 000	Pass

Steel pipe					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	212.8	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	22.7	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	5.02	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	519.4	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	N.D.	46 000	Pass

Screw					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	221.8	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass



Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	22.0	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	5.02	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	501.2	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	N.D.	46 000	Pass

Nut					
Test Item	Unit	Test Method	Result	Limit	Verdict
Aluminium	mg/kg	EN 71-3:2019+A1:2021	187.2	5 625	Pass
Antimony	mg/kg	EN 71-3:2019+A1:2021	N.D.	560	Pass
Arsenic	mg/kg	EN 71-3:2019+A1:2021	N.D.	47	Pass
Barium	mg/kg	EN 71-3:2019+A1:2021	N.D.	18 750	Pass
Boron	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Cadmium	mg/kg	EN 71-3:2019+A1:2021	N.D.	17	Pass
Chromium (III)	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Chromium (VI)	mg/kg	EN 71-3:2019+A1:2021	N.D.	0.053	Pass
Cobalt	mg/kg	EN 71-3:2019+A1:2021	N.D.	130	Pass
Copper	mg/kg	EN 71-3:2019+A1:2021	21.3	7 700	Pass
Lead	mg/kg	EN 71-3:2019+A1:2021	5.02	23	Pass
Manganese	mg/kg	EN 71-3:2019+A1:2021	N.D.	15 000	Pass
Mercury	mg/kg	EN 71-3:2019+A1:2021	N.D.	94	Pass
Nickel	mg/kg	EN 71-3:2019+A1:2021	N.D.	930	Pass
Selenium	mg/kg	EN 71-3:2019+A1:2021	N.D.	460	Pass
Strontium	mg/kg	EN 71-3:2019+A1:2021	N.D.	56 000	Pass
Tin	mg/kg	EN 71-3:2019+A1:2021	501.4	180 000	Pass
Organic tin	mg/kg	EN 71-3:2019+A1:2021	N.D.	12	Pass
Zinc	mg/kg	EN 71-3:2019+A1:2021	N.D.	46 000	Pass

Photos
Details of: LP002

View:

- ☐ general
- ☐ front
- ☐ rear
- ☐ right
- ☐ left
- ☐ top
- ☐ bottom



Details of: General view

View:

- ☐ general
- ☐ front
- ☐ rear
- ☐ right
- ☐ left
- ☐ top
- ☐ bottom



Details of: General view

View:

- ☐ general
- ☐ front
- ☐ rear
- ☐ right
- ☐ left
- ☐ top
- ☐ bottom



Details of: General view

View:

- ☐ general
- ☐ front
- ☐ rear
- ☐ right
- ☐ left
- ☐ top
- ☐ bottom



Details of: General view

View:

- ☐ general
- ☐ front
- ☐ rear
- ☐ right
- ☐ left
- ☐ top
- ☐ bottom



Details of: General view

View:

- ☐ general
- ☐ front
- ☐ rear
- ☐ right
- ☐ left
- ☐ top
- ☐ bottom



Details of: General view

View:

- ☐ general
- ☐ front
- ☐ rear
- ☐ right
- ☐ left
- ☐ top
- ☐ bottom



Details of: General view

View:

- ☐ general
- ☐ front
- ☐ rear
- ☐ right
- ☐ left
- ☐ top
- ☐ bottom



Details of: General view

View:

- ☐ general
- ☐ front
- ☐ rear
- ☐ right
- ☐ left
- ☐ top
- ☐ bottom



Details of: General view

View:

- ☐ general
- ☐ front
- ☐ rear
- ☐ right
- ☐ left
- ☐ top
- ☐ bottom



Details of: General view

View:

- ☐ general
- ☐ front
- ☐ rear
- ☐ right
- ☐ left
- ☐ top
- ☐ bottom



Details of: General view

View:

- ☐ general
- ☐ front
- ☐ rear
- ☐ right
- ☐ left
- ☐ top
- ☐ bottom



Details of: General view

View:

- ☐ general
- ☐ front
- ☐ rear
- ☐ right
- ☐ left
- ☐ top
- ☐ bottom



Details of: General view

View:

- ☐ general
- ☐ front
- ☐ rear
- ☐ right
- ☐ left
- ☐ top
- ☐ bottom



The end of report