

Children’s seatings: first technical standard coming soon!

Arianna Visintin

July 2021

Since 7 July, CEN has made the new standard for children’s seatings available. Therefore, within 6 months every single country belonging to the European standardization is obliged to implement it as its own National standard. As an indication, UNI should adopt it by next September.

The process of this standard begins in 2014 when the European Commission gives a mandate to CEN. The requirements to be analyzed and foreseen are in fact those of Directive 2001/95/EC on “General Product Safety”.

CEN then gave the task to working group 2, technical commission 207, which deals with children’s furniture and began work on drafting the future EN 17191 in 2017. When it is published in the Official Journal, it will be a harmonised standard and compliance with its requirements will give presumption of conformity with Directive 2001/95/EC.

Another important feature is that it describes the safety and tightness requirements by analyzing and referring to the risks that a child may face using a seating.

This approach is already present within other standards of childhood furniture such as, for example, the one on cots and on high chairs.

EN 17191 splits children’s seatings into three sizes: 1, 2 and 3. These sizes take into account the height of the children and give a rough indication of the age range.

The laboratory defines the size of the product by measuring the height of the seat.



	Seat height	Ages	Stature
Size 1	$H \leq 270$ mm	Approximately 1 to 3 years	(930 - 1 160) mm
Size 2	270 mm $< H \leq 360$ mm	Approximately 4 to 7 years	(1 080 - 1 210) mm
Size 3	$H > 360$ mm	Approximately 7 to 14 years	(1 210 - 1 590) mm

The risks analyzed are therefore as follows:

- **Glass hazards:** the requirements want to address the risk associated with broken glass with sharp edges. Glass, therefore, must not be present.
- **Entrapment hazards:** this is the risk associated with the circulation blockage that can occur when a child’s fingers become trapped in an opening. Shapes, sizes and depth are analyzed. The requirements also take into account the hazard of head and neck entrapment. These risks increase as the child’s abilities increase and he becomes more capable to explore. The fact that the child is able to move by himself does not mean that he can free himself in case of trapped fingers or body parts.
- **Hazards from moving parts:** Consideration is given to the distances between moving parts, the pre-

sence of mechanisms, and the material that makes up these moving parts. The risk is most severe if the compression occurs under the weight of the body, under the weight of a major component or under the thrust of mechanisms. Squeezing during product setup is considered acceptable as you have control over your own movement.

Other considerations for this risk:

- * accessibility of the moving part
- * flexibility of the material
- * the shape of the materia
- * the effect of forces applied in different positions
- * how these parts move
- * the ability of the child

- **Hazard due to unintentional folding of the chair:** unintentional folding can cause falls and crushing. Requirements are described for folding chairs, for the locking systems to be provided and also for deck chairs which present risks due to the type of locking mechanism.
- **Hazards from enclosure:** these requirements take into account the risk of asphyxiation associated with possible entrapment in enclosed parts into which the child can fully enter (e.g. a toy basket that can be sat on). If ventilation is ensured, the child will be able to exit easily. Requirements are described for lids that could close and hit the child's head or neck and, by trapping the infant, causing asphyxiation.
- **Entanglements hazards:** these requirements are only applicable to size 1 as this product will be used by very young children. They want to prevent strangulation caused by ropes, ribbons, etc. on the chairs. The requirement takes into account the suitable length to avoid strangulation. The same applies to looped cords.
- **Chocking and ingestion hazards:** suffocation occurs when the airways are blocked and breathing is impeded and air does not reach the lungs, which can lead to brain damage. The risk of swallowing considers any small parts that can be ingested, can get stuck inside and cause tears. The requirement, which is applicable to size 1 only, defines limits on the measurements of the small components that can detach or be removed by the child. Considerations are made on magnets which, if ingested, can cause serious damage. There are also requirements on the upholstery parts: the strength of the seams is evaluated to understand if the child is able to reach the inner material.
- **Suffocation hazards:** occurs when the mouth and nose are simultaneously blocked and oxygen does not reach the lungs, causing brain damage. The requirements apply to plastic bags that are used in packaging. They must comply with certain characteristics and must be marked with a warning to keep them out of the reach of children to avoid the suffocation risk.
- **Chemical hazards:** children up to 24 months spend a lot of time mouthing and chewing. It is important that the quantities of certain chemical elements, especially metals, are limited. Requirement foreseen only for size 1. The verification is carried out considering the EN 71-3 standard "*Migration of certain elements*."
- **Thermal hazards:** the risk of a child's seating coming close to or into contact with an ignition source is low. However, if a chair came close or in contact with a source, it must not burn immediately. The requirement applies only to accessible fabric parts and the test is described in EN 71-2 "*Toy safety- Flammability*". Retardant products could pose chemical risks, but it has been considered that there are regulations at European level, such as REACH, governing the use of hazardous materials.
- **Requirements for tightness, durability and stability:** any breakage of the seating frame can cause damage to the child. Tightness and durability requirements have been included for the seat, backrest, footrest and armrests when present. The standard foresees two levels: level 1 for chairs of size 1 and 2; level 2 for chairs of size 3. The seating must also meet

Children's seatings: first technical standard coming soon!

Arianna Visintin

the stability requirements, assessed with EN 1022: 2018, before and after the tests have been performed. The strength tests are carried out as described in the method standard EN 1728, with the necessary modifications to load pads and application points due to the small size of children's chairs compared to adult chairs. Below you will find the table with loads, cycles and tests foreseen for the two levels.

Test	Reference	Test level 1 (sizes 1 and 2)	Test level 2 (size 3)
Seat and back static load test	EN 1728:2012 Clause 6.4	Seat: 750 N Back 200 N 10 cycles	Seat: 1000 N Back 250 N 10 cycles
Seat front edge static load test	EN 1728:2012 Clause 6.5	/	Seat: 1000 N 10 cycles
Footrest static load test	EN 1728:2012 Clause 6.8	Force: 750 N 10 cycles	Force: 1000 N 10 cycles
Armrest downward static load test	EN 1728:2012 Clause 6.11	Force: 250 N 10 cycles	Force: 350 N 10 cycles
Seat and back durability test	EN 1728:2012 Clause 6.17	/	Seat: 750 N Back 250 N 10.000 cycles
Seat front edge durability test	EN 1728:2012 Clause 6.18	/	Force: 750 N 5.000 cycles
Armrest durability test	EN 1728:2012 Clause 6.20	/	Force: 200 N 5.000 cycles
Leg forward static load test	EN 1728:2012 Clause 6.15	Horizontal force.: 180 N Seat force: 300 N 10 cycles	Horizontal force: 300 N Seat force: 750 N 10 cycles
Leg sideways static load test	EN 1728:2012 Clause. 6.16	Horizontal force: 180 N Seat force: 300 N 10 cycles	Horizontal force: 250 N Seat force: 750 N 10 cycles
Seat impact test	EN 1728:2012 Clause 6.24	Drop height: 100 mm 10 cycles	Drop height: 140 mm 10 cycles
Back impact test	EN 1728:2012 Clause 6.25	Height of fall: 70 mm 10 cycles	Height of fall: 120 mm 10 cycles

The standard closes with the requirements for product information: purchase information, marking and instructions for use.

CATAS, in addition to having participated in the writing of the standard, is already able to perform all the tests required. The accreditation is coming soon!

For info:

Arianna Visintin
+39 0432 747233
visintin@catas.com

All rights reserved

Reproduction or duplication of the contents of this article is authorized under condition that the source
- © CATAS - San Giovanni al Natisone - Udine - Italy is being cited