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Child use and care articles - General and common safety guidelines

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Child use and care articles - General and common safety guidelines

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document is a non-normative CEN publication which provides information on common hazards that should be taken into consideration when developing product standards for child use and care articles.

These guidelines deal with hazards common to child use and care articles. They have been drawn up by a working group of experts set up by CEN Technical Committee, TC 252 Child use and care articles, with the prime objective of harmonizing the approach to risk assessment and prevention. Recommendations are included on preventive safety measures to avoid the risk of injuries caused by articles, and their packaging, intended for, and used by, children.

The safety and performance of child use and care articles is of considerable importance, as these products are primarily aimed at children four years and younger who form a very vulnerable group in society. Special consideration has to be given to the fact that such children cannot understand how to avoid risks and thus are involuntarily exposed to them.

Child use and care articles constitute a group of consumer products with large variations between the different products. Nevertheless, since they all come in contact with children (and their carers), several hazards associated with this group of products are similar. The same safety principles can be applied and therefore in many cases reference can be made to existing standards.

The described measures are based upon safety requirements in existing standards and in standards under development for different groups of articles within the scope of TC 252. The principles of corresponding requirements regarding safety of toys (standards developed by TC 52), safety of playground equipment (standards under development in TC 136) and safety of children's furniture (standards under development in TC 207) have also been taken in to consideration.

The information given in this report reflects the current state of the art and might be subject to revisions in order to be kept up to date with developments in related standards. Some of the test methods offered have yet to be validated.

Introduction

These guidelines present model safety specifications and test methods and provide in-formation relating to hazards that are common to different child use and care articles.

The general safety philosophy is covered in chapter 1, with detailed safety information given in the following chapters:

- Chemical hazards (chapter 2)
- Mechanical hazards (chapter 3)
- Fire and thermal hazards (chapter 4)
- Product information (chapter 5)

Further information in the Annexes:

- provides a table of anthropometric dimensions of children from birth to age 4 (Annex A),
- specifies a risk analysis procedure adapted to the hazard based approach (Annex B),
- presents a common standards format for standards dealing with child use and care articles. (Annex C). The recommendations given apply to the drafting of documents intended to become **child safety standards**. They are more specific; being either additional or complementary to those contained in the PNE-rules: CEN/CENELEC Internal Regulations Part 3: Rules for the drafting and presentation of European Standards.

How to use these guidelines

The model safety specifications and test methods are intended to give guidance and to lead to consistency when writing safety standards for child use and care articles. They should primarily be consulted as a reference document on a judicious "use when applicable" basis or when writing standards for other child related products. In addition, these guidelines can assist development departments of companies, and persons with a general professional interest in child safety.

The model safety specifications do not constitute an exhaustive set of specifications that can be directly applied to all child use and care articles. As subsequent sections explain, their applicability to particular products can only be decided by experts. These decisions can only be reached after analyzing all the hazards associated with a particular product, and taking into account:

- conflicts between the requirements to prevent different types of hazards and
- conflicts between hazard reduction and usefulness to the consumer.

There may also be alternative means of achieving similar levels of safety that are not envisaged in this document.

Whilst this document is in principal advisory, model recommendations are presented in the imperative, as this is the way they would be worded as requirements in the standard. The model wordings are contained in shaded boxes. The references given in the shaded boxes to other sections within this report are in italics and should be replaced, when used in a standard, with the relevant reference to existing European standards (or reference to this report).

The **general safety philosophy** in chapter 1, gives guidance on the approach to setting safety requirements, indicating the need for analysis of the hazards, which is described in Annex B.

The possibility of **chemical hazards** arising from the materials in the construction of child use and care articles are considered in chapter 2. Chemical hazards might arise from ingestion, skin contact, inhalation and contact with the mucous membranes.

Mechanical hazards are addressed in chapter 3. Mechanical hazard is a general de- signation for physical factors which may give rise to injury due to the mechanical properties of products/articles or product parts.

Significant characteristics of a material's reaction to fire and extremes of temperature must be considered to reduce **thermal hazards**. Guidance on how to determine the characteristics to be tested is given in chapter 4.

The use of safety-related **product information** is addressed in chapter 5. Annex D contains standardized warnings, which can be incorpo- rated as appropriate into the relevant standards in question.

Annex A provides tables of **anthropometric data and abilities of children from birth to 4 years** related to risks. It presents a compilation of data encountered in current literature. Only sources that explain the method by which the measurements were taken, and of which the sample size was large enough to give reliable results have been selected.

Annex B describes an outline **risk analysis** procedure which can be used according to the product category and/or foreseeable use.

Annex C presents a recommendation for the content range and chronological **format of standards** constructed with the help of these guidelines.

Annex D contains examples of **warning information** and guidelines for their content and presentation.

Annex E contains a list of **common terms** used in this document and their use in the context of applying the guidelines.

Annex F contains a **bibliography** of reference literature not listed in specific sections.

Annex G is a **checklist referencing current and draft CEN standards**, the hazards they address and the requirements applied.

The diagram in figure 1 may be used as a structure for understanding the document. A helpful sequence would be

1. read and understand the general safety philosophy,
2. conduct a risk analysis,
3. establish an age and ability range for the child who uses the product and consult anthropometric data,
4. address the appropriate hazard category or categories,
5. select or devise the appropriate requirements and methods of verification,
6. consult the section for product information,
7. fit into the appropriate structure for the standard.

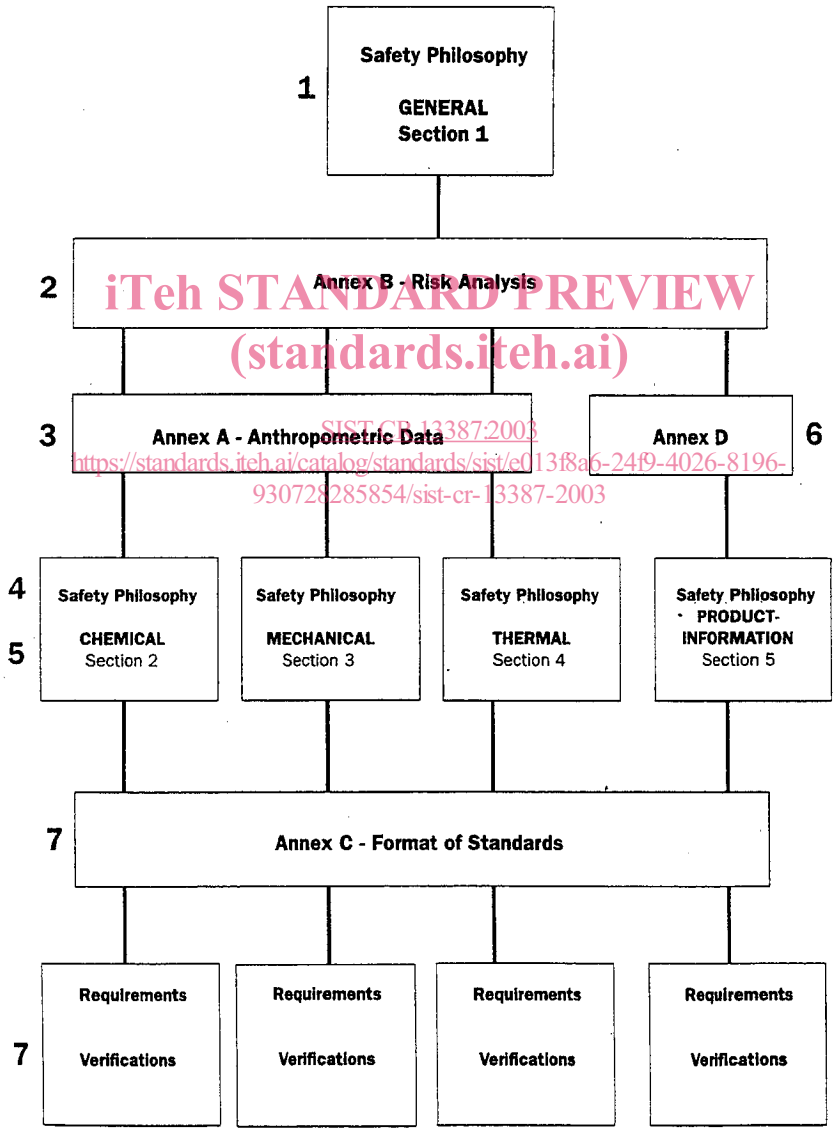

Figure 1. Structure for the use of this report.

1 General safety

Safety is often a balance between being safe from causing or suffering hurt, injury or loss and the other demands a product, process or service must meet. For example, ensuring that the item is fit for purpose as well as meeting consumers' wants, needs and expectations.

To reduce harm, attention has to be paid to

- the child's stage of development (ability, weight, age, etc.);
- the hazard presented by the product in the environmental circumstances under which it and the child come into contact with one another;
- normal or reasonably foreseeable use, bearing in mind the normal behaviour of children who do not generally share the same degree of care as an average adult user.

Built-in safety

Child use and care articles shall be designed to be safe. If certain hazards cannot be eliminated by design, safeguards, e.g. shielding or harnessing, should be applied. For cases where a hazard cannot be eliminated or sufficiently minimized – by design or safeguards – product related information, like instructions for use and warnings, should be given to reduce any residual risk. Product related information should never be used as an alternative to safe design.

It is evident that "built-in" safety, which does not require any further human action, is the most effective means of preventing accidents and injuries associated with products. It is best built in at the design and manufacturing stages of product development so that no safety device or action is needed when the product is used.

If some sort of safety device is needed, it should wherever possible be one, which works automatically without human intervention. Next in order of effectiveness is a safety precaution or device which only requires one single action by a human being. Least effective of all is where safety has to be remembered in relation to the product each time it is used.

The major impact of standardization in the field of safety lies in whatever preventive measures can be taken at the stage of designing a product. Although standards form a vital part of safety they cannot be the complete answer and supplementary measures have to be considered in conjunction with standardisation. Standards related to child use and care articles should always be formulated with children **and child safety** in mind and there can be no doubt about their importance in reducing children's injuries.

Accident data

The different safety measures should be applied if there is an unacceptable risk that the article will jeopardise the safety and/or health of the child or third parties when used. Also ensure that consideration is given to the intended or foreseeable manner of use of the article, bearing in mind the normal behaviour of children. A basis for risk assessment is given in Annex B. Accident and injury data such as EHLASS "European Home and Leisur Accident Surveillance System" and/or other equivalent information sources should be consulted.

The absence of an accident history may not be a good reason for an automatic presumption of a low level of risk. Other factors should be taken into account such as risk assessment, particularly when the possible severity of injury is high. Appropriate data may not be available for many reasons including the absence or ineffectiveness of a data collection system, the time delay in collating and presenting statistics, changes in product design and use conditions etc. For example, historical information related to a product or material traditionally used in a hot climate may not apply to its use in colder countries.

Seek appropriate alternatives

If the recommended test methods cannot be applied, for whatever reason, a modified or alternative clause addressing the very same hazard should be given in the product standard.

Where the function of a product or part of a product is beyond the scope of child use and care articles, appropriate requirements should be applied. E.g. toys attached to child use and care articles must comply with appropriate toy safety requirements.

These recommendations are not exclusive and attention is drawn to the importance of ensuring that all potential hazards relevant to the products are fully addressed e.g. hygiene, the effects of electrical power etc., where other safety standards may apply.

2 Chemical hazards

Materials and substances used to produce/con-struct child use and care articles may generate several different hazards; hazards resulting from contact with, ingestion or inhalation of, materials and substances that may have a harmful, toxic, allergic and/or irritant effect.

2.1 Terms related to chemical hazards

certain elements: commonly encountered con-taminants/trace elements for which migration limits are required because of health (toxico-logical) concerns following exposure to low le-vels of the element. The elements covered by this definition are: arsenic, antimony, barium, cadmium, chromium, lead, mercury and selenium.

child contact articles: articles or parts of an article which may come into frequent contact with a child and/or could give rise to ingestion.

2.2 Safety philosophy

When drawing up a standard for a child use and care article it is necessary to consider the possibility of chemical hazards arising from the materials used in its construction. Chemical hazards are much less obvious than mechanical hazards and might arise from inhalation, skin contact, ingestion or by contact with the mucous membranes. Ingestion is of particular importance as young children frequently suck and mouth anything within reach.

Chemicals are widely used in processing and manufacturing materials and products of all kinds. Many chemicals are potentially hazardous. The degree of risk depends on the particular chemical, its concentration in the product, the extent of contact with the child, its temperature and its rate of transfer from the product to the child.

It is first necessary to consider what hazardous chemicals might be present in child use and care articles. Table 1 illustrates most of the materials that might be used and the main hazardous substances potentially present in each case. The possible chemical hazards are probably even wider than are indicated in the table. However, the risk from trace amounts of chemicals is unlikely to be significant unless the chemicals are highly toxic or carcinogenic and even then they have to get into a child's body.

To carry out an assessment of the risk from a toxic substance potentially present in some part of a child use and care article, chemists and toxicologists should be consulted.

2.2.1 Chemical contact with the child

There are four ways by which chemicals can enter a child's body, inhalation, skin contact with transmission through the skin, ingestion and contact with the mucous membranes.

Table 1. Materials likely to be used and their associated hazards.
This table only indicates possible hazards connected with different types of materials.
It is not an exhaustive list of materials nor of the possible hazards.

A=Migration of certain Elements. **B**= Dyestuffs/Pigments, **C**=Flame Retardants, **D**=Plasticizers, **E**= Formaldehyde, **F**=Preservatives/Antioxidants, **G**=Allergies, **H**=Other Toxic Substances

Type of Material	**Type of Hazard**							
	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Constructional								
bamboo	X	X	X					
basketwork	X	X	X					
chipboard/plywood	X	X	X		X			
metals/alloys	X						X(n)	
plastics	X	X	X	X		X		X(n)
rubber	X	X	X		X	X	X	X(h,s)
wood	X	X	X					
Sheet Material								
fur	X	X	X		X	X	X(m)	
leather	X	X				X	X(Cr)	
paper/board	X	X	X			X		X(d)
plastics	X	X	X	X		X		X(n)
rubber	X	X	X		X	X	X	X(h,s)
textiles	X	X	X	X	X	X		X(j,n,p)
Coatings								
enamel	X							
metal plating	X						X(Ni)	
paint/varnish	X	X	X		X			
plastics	X	X	X	X		X		
rubber	X	X	X			X	X(r)	X(h,s)
Fillings/Paddings								
feathers	X	X	X			X	X(m)	
foamed plastics	X	X	X	X		X		
hair	X	X	X					
straw	X		X				X	
wadding (natural)	X	X	X		X		X	X(p)
wadding (man-made)	X	X	X	X		X		
Other								
bristles	X	X						
cord/string/rope	X	X	X	X	X	X		
cork	X	X	X					

where Cr - chromium, d - dioxins, h - nitrosamines, j - polychlorophenol, m - fine particles, n - vinyl chloride monomer, Ni - nickel, p - pesticides, r - rubber and s - accelerants/vulcanisation agents (e.g. 2-mercaptobenzothiazole, MBT).