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Child use and care articles - General safety guidelines - Part 4: Thermal hazards

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Child use and care articles - General safety guidelines - Part 4: Thermal hazards

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European foreword

This document (CEN/TR 13387-4:2015) has been prepared by Technical Committee CEN/TC 252 “Child use and care articles”, the secretariat of which is held by AFNOR.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TR 13387:2004.

CEN/TR 13387 comprises the following five parts:

- Safety philosophy and safety assessment (CEN/TR 13387-1)
- Chemical hazards (CEN/TR 13387-2)
- Mechanical hazards (CEN/TR 13387-3)
- Thermal hazards (CEN/TR 13387-4)
- Product information (CEN/TR 13387-5)

CEN/TR 13387-4 should be used in conjunction with CEN/TR 13387-1.

This new edition of this European technical report is a hazard based technical report. In comparison with the previous version, the main changes are:

- Flammability and burning hazards: Test methods aligned with EN 71-2:2011+A1:2014.

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CEN/TR 13387-4:2015 (E)

1 Scope

This Technical Report provides guidance information on thermal hazards that should be taken into consideration when developing safety standards for child use and care articles. In addition, these guidelines can assist those with a general professional interest in child safety.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

- 2.1 flammability**
ability of material to burn with a flame under specified test conditions
- 2.2 flaming debris**
material that becomes detached from the sample during the test procedure and continues to flame as it falls
- 2.3 ignitability**
ability to obtain sustained combustion under specified test conditions when a material is exposed to an ignition source
- 2.4 surface flash**
rapid spread of flame over the surface of a material without ignition of its base structure at the same time
- 2.5 thermal hazard**
hazard caused by high or low temperatures

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3 Thermal hazards

3.1 Safety philosophy

Thermal hazards include hazards associated with flammability and the burning characteristics of materials, contact with hot and cold surfaces and liquids, contact with flames, contact with products that melt on heating and overheating or exposure of a child to very low or very high temperatures.

Chemical products such as flame retardants which may create chemical hazards should be avoided in child use and care articles. Flammability requirements should be set with a view to avoid the use of flame retardant, this may be solved either by design or use of appropriate materials.

The following materials should not be used in the manufacture of child use and care articles:

- celluloid (cellulose nitrate) and materials with a similar behaviour except when used in varnish or paint;
- materials with a pile surface which produces surface flash on contact with a flame.

In addition child use and care articles should not contain flammable gases, flammable liquids. For EU countries the categories are defined in EU Directives.

3.2 Flammability and burning hazards

3.2.1 General

Some child use and care articles may need testing for surface flash and flammability.

Standards for child use and care articles, when specifying requirements, currently refer to EN 71-2 “Safety of toys – Part 2 Flammability”. The requirements establish limits for the propagation of the flame if a textile material is ignited. Additionally EN 71-2 states that there should be no surface flash on material with surface pile.

The significant characteristics of a material’s reaction to fire which should be considered are:

- ignitability;
- flame propagation;
- flaming debris;
- surface flash.

Their relative importance depends on the product and the way the product is constructed and used.

It should be taken into consideration that the combustion of some materials may produce toxic fumes which is the most common cause of death in relation to fire.

It should be taken into consideration that other tests methods are available from furniture or textile standards.

3.2.2 Rationale

For the majority of child use and care articles, the probability that the product will come close to or be in contact with a source of ignition is low. However, if the product should come close to, or be in contact with an ignition source, the carer should have sufficient time to remove the child before injury occurs. Any rate of spread of flame should therefore be slow and should not produce a surface flash.

3.2.3 Requirements

Child use and care articles for which flammability requirements are appropriate should, comply with one of the following requirements depending on the characteristics of the material and the type of child use and care article in question:

- no surface flash when tested in accordance with EN 71-2:2011+A1:2014, 5.5;
- a recommended maximum rate of spread of flame of 50 mm/s when tested in accordance with EN 71-2:2011+A1:2014, 5.4;
- no surface flash when tested in accordance with EN 71-2:2011+A1:2014, 5.5, and a recommended maximum rate of spread of flame of 50 mm/s when tested in accordance with EN 71-2:2011+A1:2014, 5.4.

When drafting product standards care should be taken in specifying sufficient details (e.g. positioning of the burner, layers of fabrics and paddings, etc.) on how to apply the test methods of EN 71-2:2011+A1:2014, 5.4 and/or EN 71-2:2011+A1:2014, 5.5 to the specific products to ensure testing is achievable.

Reference to EN 71-2:2011+A1:2014 is mentioned here as this is the current version at the time of publication of this Technical Report. When drafting product standards the latest version available at that time should be referenced, taking care to reference the right clause numbers that reflect the ones cited above.

CEN/TR 13387-4:2015 (E)**3.3 Hazards from hot and cold surfaces****3.3.1 Rationale**

Contact of parts of a child use and care article with the skin or the mouth of a child is common. If these surfaces are too hot or too cold burns can occur.

As children have limited ability to react to contact with hot and cold surfaces, they require protection. Children do not touch in the same way as adults.

Until 24 months of age, children do not have reflexes fast enough to respond to contact with a hot surface. Thus, the contact period may be up to 15 s for very young children. (Extract from CENELEC Guide 29).

It is unlikely that child use and care articles would be designed to generate heat.

If a child use and care article generates heat in use, EN ISO 13732-1 recommends maximum temperatures that may be used as a guidance when drafting standards for child use and care articles.

3.3.2 Requirements

Where a part of a child use and care article is likely to be exposed to extremes of temperature and the child will have access to these parts, warnings should be given in the product information warning carers to the dangers associated with hot and cold surfaces.

3.4 Hazards from hot and cold liquids or food**3.4.1 Rationale**

Hot liquids and hot food can result in scalds. Children are at risk if they can get access to hot liquids and hot food. A potentially dangerous situation is for example where liquid is too hot in a feeding bottle, hot water coming from the tap or hot food in a dish. The risk from cold liquids or cold food is less likely to occur with child use and care articles.

3.4.2 Requirements

Where the use of a child use and care article could result in a child having access to hot liquids or food, warnings should be given in the product information warning carers to the dangers associated with hot liquids or food.

3.5 Hazards from contact with flames**3.5.1 Rationale**

Flames are an obvious hazard to adults but to children they may be an attraction. Where a child use and care article is designed to protect a child against access to flames, it is important that its protective function is adequate.

3.5.2 Requirements

Any protective product should prevent a child from having access to the open flames.

3.6 Hyperthermia and hypothermia hazards

3.6.1 Rationale

Overheating, hyperthermia, a rise in the child's core temperature, is a factor that has been associated with sudden infant death syndrome particularly for children under 12 months old. This can occur if the child for example is covered with textiles e.g.: cloths, beddings or the product itself does not allow the heat to be dissipated. Combinations of environmental temperature and products can cause heat build-up also constitutes a hazard.

A lowering of body temperature, hypothermia results in a lowering of the child's core temperature that should be taken into consideration.

3.6.2 Requirements

Warnings should be given in the product information warning carers to the dangers associated with overheating.

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